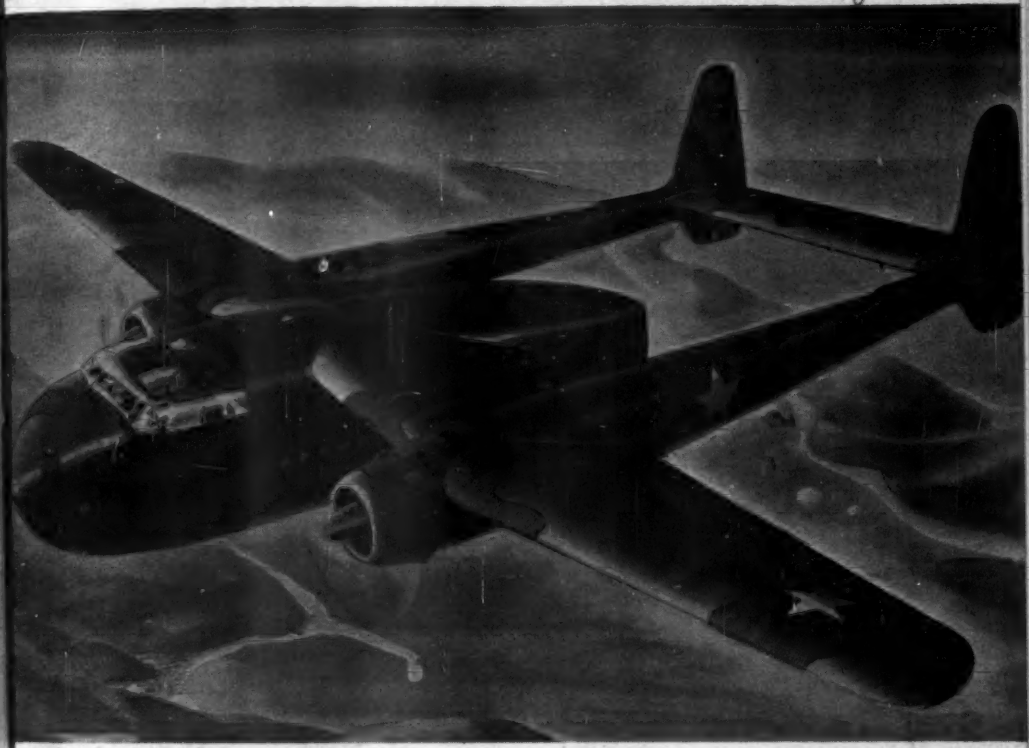
AIR TRANSPORTATION

IR CARGO FREIGHT EXPRESS MAIL Period R. R. FOREIGN AND DOMESTIC AIR COMMERCE



FAIRCHILD CARGO CARRIER—An artist's drawing of a new "truck horse" of the air, a plane built to meet such war needs as transportation of guns, tanks, ammunition and troops. The all-metal plane has a cruising range of 3,500 miles and is designed to land on fields of limited size.

L. 3. No. 4 OCTOBER 1943 $5. PER YEAR

ONE DOWN—
Plenty More to Go

A REPORT TO THE READER ON
AIR TRANSPORTATION'S FIRST YEAR

ONE year—12 issues—ago, AIR TRANSPORTATION made its bow to you and to the shipping world, with a totally new idea: that of a publication about the air that, for once, *wasn't addressed* just to airmen.

Our basic idea, then as now, was that the subject of CARGO-BY-AIR was big enough to deserve the attention of a publication dedicated to no other interest . . . a publication addressed not to the professional aviation man but to the shipper, the man whose good, hard American dollars must and will support the cargo-carrying airlines of the future.

We thought the aviation industry would welcome such a publication as a means of speaking, through advertising, to its future customers. We likewise thought that the shipping world . . . the manufacturers, importers, exporters, big wholesalers and retailers and freight forwarders . . . included enough wideawake people, people anxious to look ahead and to learn, to welcome such a publication with equal enthusiasm.

It turns out we were right on both predictions. And here we are, a whole year old, to prove it. We even have some imitators who had the same idea almost a year later than we did . . . So much the same idea that they all but adopted our name as well.

One year ago this month, we said: "The Shipper, and with him all the Manufacturers, Importers, Exporters, Forwarders and others . . . stands confused, not knowing exactly what to think."

We think we can say in all modesty that, while he does not yet know all the answers, the shipper who has read AIR TRANSPORTATION since October, 1942, is far wiser than he was a year ago, far more conscious that, as we also said a year ago:

> " . . . *sooner or later,* CARGO-BY-AIR *will be a mighty force in both domestic and international trade—a force that no shipper can ignore —a force with which every shipper should, in his own interest, be familiar.*"

Not that we consider our job even more than started. But the beginning has been made. And vast historic progress on the field of air cargo has been made (and recorded in these pages) during that year.

* * *

ONE of the things that has heartened us most is the great response from readers themselves

which AIR TRANSPORTATION has won in every single month. The ink was barely dry on the first issue last October when this flood of mail began . . . and it has steadily grown ever since.

We ran an article in Issue No. 1, *Foods Delivered By Air?* It was one of the first articles to appear anywhere exploring the possibilities of air transport in moving dehydrated foods—the teaming up of two important war-accelerated industries. Food tradepapers pounced on the story avidly, asked for rights to reprint it. Others wrote in, almost overnight, for more details.

Educators—professors in colleges and universities where air transport was being taught as a regular course—grabbed up AIR TRANSPORTATION almost gleefully. And we started immediately telling something of the story of how American education is building a foundation of trained personnel for the air-shipping tomorrow, with *Air-Conditioning Youth for the Air Cargo Age*, last November.

Very early, we looked outside the U. S., realized that American companies had no monopoly on the air cargo progress of the present, to say nothing of the postwar era. Thus began our famed series of articles exploring the activities of foreign airlines, beginning with *The Flying Dutchmen Carry On with Cargo.* A few months later, the Flying Dutchmen of KLM were actually flying cargo from the U. S. across the Caribbean, as we duly reported last summer.

* * *

THOUGH we know full well that CARGO-BY-AIR has a brilliant and spectacular future, we have always tried to reduce the subject to practical terms, to keep it out of the vague, pipedream kind of thinking that visions tomorrow's planes sending every train and every ship to the scrapheap. Thus, we were one of the few publications to print in full United Air Lines' President W. A. PATTERSON'S now historic plea, *Keep Air Cargo's Feet on the Ground*, last December.

We hastened to bring the freight forwarder into the picture, as no one else had done, with THOMAS A. BRADLEY'S *Freight Forwarders Will Aid Air Cargo's Operation*, also last year.

We analyzed air cargo insurance in ROBERT B. LYNCH'S *Insurance for Less* a full year ago.

We brought in the retailer's outlook when we published FRED W. ASHTON'S bright piece on the department store's stake in CARGO-BY-AIR from the viewpoint of his own organization, Bullock's great store in Los Angeles. Later we heard similarly from Marshall Field & Co.'s LAWRENCE B. SIZER.

We began examining the relation of CARGO-BY-AIR to world peace and to our nation's foreign policy with CAB Chairman L. WELCH POGUE'S *Air Cargo & World Peace* back in January—and we've continued to do so since then, often with Mr. Pogue's eminent aid, as in this issue.

Gliders started winning our interest long ago as economical cargo-carriers. In January LIEUT. A. L. RIGGS, former sales manager of Waco Aircraft, explored their possibilities for us. Later his article was followed by articles by MAJOR LEWIS B. BARRINGER and RICHARD C. DU PONT, both among America's most eminent authorities and both martyrs since then to their faith in motorless air transport.

We aren't an engineering paper and never intend to be. But we managed to excerpt from the historic air cargo convention of the SOCIETY OF AUTOMOTIVE ENGINEERS last Decem-

ber all the vital kernels of information that could be helpful to the shipper-by-air, publishing them in a two-instalment AIR TRANSPORTATION Special Report.

* * *

BELIEVING that reduction of costs is all-important to air cargo's future, we published the able analysis of CROIL HUNTER, Northwest Airlines' President, last February—prophetically, as it turned out, for just a month later we were able to report in detail the CIVIL AERONAUTICS BOARD'S ruling that made a drastic lowering of cargo rates a practical possibility for the first time.

We've explored cargo loading with Evans Products Co.'s COL. EDWARD S. EVANS . . . army air transport with MAJ. GEN. RALPH ROYCE . . . feeder air cargo services with HARRY R. STRINGER, of All American Aviation, the nation's foremost performer to date in bringing air transport's benefits to small-town America . . . dirigibles as cargo-carriers with Goodyear's P. W. LITCHFIELD, head of the only company in America that has built them.

Back in February, we started reporting on Britain's plans for a place in the postwar air, publishing the first picture of the super-transport plane designed by F. G. MILES to appear on this side of the Atlantic. We took some pride in the fact that it wasn't until three weeks later than the New York *Herald Tribune's* aviation editor reported the same thing.

In May, we published in full the history-making speech on aviation's tomorrow made in New York by the Air Transport Assn.'s COL. EDGAR S. GORRELL . . . and had it in many readers' hands the very next day.

In June and July, we gave you, in full, the exhaustive report on wartime air cargo plane development issued by the OFFICE OF WAR INFORMATION. Again, we were the only publication to tell the story in full.

* * *

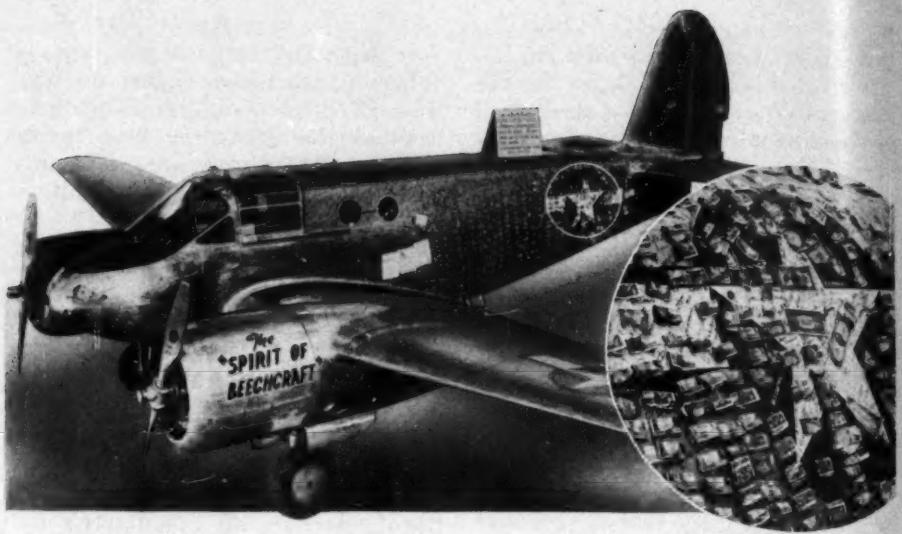
ALL of which we look on with pride, but with no sense of a job completed. This first year, with us as with Churchill, is but the end of the beginning.

We take pride, too, in the job which your Editor has been able to do outside these pages . . . in educational addresses on CARGO-BY-AIR before such gatherings as last summer's aviation session of the NEW ENGLAND COUNCIL and last spring's MIDDLE AMERICA INSTITUTE. And in the high recognition accorded AIR TRANSPORTATION itself in the naming of your Editor as the first chairman of the newest activity of the energetic and influential New York Board of Trade—the Board's new Aviation Section. In these and many other ways, we are trying to do what we can above and beyond the primary job of editing and publishing.

With our company of readers growing today faster than ever . . . with our mail growing heavier day by day with the interested comments and criticisms of those who are coming to rely on our help in a unique way . . . we look forward to a far greater year of service to the readers who are our first and greatest interest, and to the cause of CARGO-BY-AIR to which all our reporting and interpreting energies are fully devoted.

John F. Budd

EDITOR & PUBLISHER,
AIR TRANSPORTATION



THE SPIRIT OF *Beechcraft*

What distinguishes this unkempt-looking Beechcraft plywood AT-10 Transitional Trainer from its sleek sisters among the umpteen hundreds that have been delivered to the Army Air Forces? Simply the fact that it is signed (in wash-off crayon) with the names of thousands of Beechcrafters and has their money plastered all over it.

It was the last unit of a large group, and a spontaneous movement developed on the production line to commemorate the event by autographing the airplane and making a donation to the recreational fund of the field to which the airplane would be assigned.

The Beechcrafters didn't care where the airplane was going; they just wanted to be generous to some of the Air Force men who use the product of their hands and skills.

In a few days the movement spread to all departments of the plant and almost every employee autographed the airplane and made his or her contribution. The result was a total of more than 2100 dollars derived solely from employee contributions, to be given without any restrictions to the recreational fund of the training field which received this Beechcraft AT-10.

This is another example of the Spirit of Beechcraft which has manifested itself in the past through Benefit Shows and Carnivals organized and conducted by Beechcrafters for the benefit of Service men and women.

The motto at Beechcraft is *"Let's Kill 'em with Production,"* but that doesn't prevent additional activities which are intended to show appreciation of the heavy contributions which are being made by Service men and women everywhere. Perhaps this spirit expresses the meaning of that much-abused word, Morale.

Beech Aircraft

CORPORATION

BEECHCRAFTS ARE DOING THEIR PART — *WICHITA, KANSAS, U. S. A.*

A Federal Department Of Air Called for to Regulate a Vast Industry

An Appraisal Is Made of Our Flying Future and How It Should Be Governed

STRESSING the fact that air transport, airplane usage, air problems permeate the whole fabric of personal, business and international life of this country, Grover Loening in a speech before the Traffic Club of New York has called for a new Federal set-up as essential for the future, a Department of the Air.

Loening stated that a Department of the Air is now as vital to the country's administration as is a Department of Commerce or a Department of Agriculture.

He offered surmises as to size of the air-freight industry after the war, mentioned some of the "headaches" facing the Federal regulators of the air commerce of the United States, and outlined an A, B, C, D development of our air commerce.

"In making an appraisal for you of our air transportation problems," he said, "I should like first to remind you that while I have been engaged by the Government only to do some consulting work for the War Production Board, I am neither authorized nor competent to present official views or anything concerning the government's policies, decisions or knowledge." Mr. Loening asserted that he intended to be of service merely as a civilian summing up various uncensored facts in order to present a pattern of trends in the air carriers' future.

He reminded his listeners that four years ago all domestic airlines of the country operated only 265 planes, and that by the time the nation went to war the figure had increased by a hundred, with an additional hundred operating overseas. Now, he said, airlines of the United States commercially operate around 160 planes. He pointed out that "with something like half the planes we have been operating domestic airlines will reach a total of 1,400,000,000 passenger miles this year, practically the same revenue passenger miles as we had operated in 1942 with a very much larger fleet of planes. The reason for this is that the planes are operated more efficiently at a greater number of hours, and also that the load factor, due partially to the priority system, has been increased from 60 odd per cent to well over 80 per cent. In fact, on some schedules right *now*, an average load factor of over 90 per cent is being attained, which traffic men will know is a magnificent achievement. The ton miles of mail and express carried by the airlines in a year ending last May totaled around 40,000,000 ton miles, of which only about 15,000,000 ton miles is air express."

Loening cited that the railroads are carrying 600,000,000,000 ton miles of cargo a year; including about 2,000,000,000 ton miles of railroad express, 15,000 times as much as the airlines were carrying last year. He pointed out that the Air Transport Command of the Army Air Forces and the Naval Air Transport Service, and also the operations of the airlines as government contractors under Army

contracts, would swell this total to several times this amount. He therefore generalized that after the war air operations and all air transport resources of the United States, will have a capacity to move about 1 per cent of the total railroad cargo movement.

Stunts of Today

"The stunts of today," he said, "have an uncanny faculty of presaging a future, but before we have tons of opprobrium heaped on our heads for being too optimistic and visionary, let's drop this with merely a personal observation for the record. I do not want to prophesy the carrying of heavy commodities by air, yet—but I certainly do not want to join those outspoken critics of too much air optimism who flatly state that 'Commodities of that character will never be carried by air.' It would be better to leave out the word 'never.' It might not read well fifty years from now, and it doesn't matter, anyhow. We don't need to hinder our appraisal now by arguments as to whether someone is talking through his hat or not, because there is plenty to do in the carriage of more expensive and quicker demanded loads—plenty for the airplane to be more than occupied with, in its normal growth the next few years."

Loening said that those loads that can more easily be carried by air are found among the 18,000,000 tons of less-than-carload-lot movements of perishables by railroad freight. To that he added a definite percentage of the 336,000,000 tons of manufactured and miscellaneous items.

"In the perishables we save refrigeration and deliver to the market a big ripe tomato or strawberry picked that morning and uninjured by vibration. In the case of manufactured items, we relieve the dealer of having to carry a large inventory in order to make prompt delivery to his customers. We must add to these items the smaller item of railroad express, because air is inevitably going to carry a large proportion of this, amounting now to some 2,000,000,000 ton miles a year. Money talks, and right now we have aircraft that can meet railroad express charges on their own home ground at 10 to 15 cents a ton mile and give a delivery four or five times as fast."

Surmising as to the size of the air industry after the war, he said average intelligent estimates indicate a deflation to about one-tenth of its size.

"When giving effect to the requirements of private aviation which, in a few years, will be around 100,000 planes a year, and to the new field of the helicopter, and the requirements of the military in a peacetime era, in which we will have, let us pray to God, reasonable preparedness at all times —giving effect to these, the industry at its present huge size could readily deliver 15,000 large transports a year of presently known types. These could carry an easy average of five tons at about 200 miles an hour and be operated 3,000 hours a year. Each plane, therefore, could contribute an average of 3,000,000 ton miles a year. And 15,000 of them would give 45,000,000,000 ton miles a year capacity.

"Now some of this capacity will be used by passenger traffic. This, of course, is a yearly production, and kept up for a few years, would mean that on a basis of somewhere around 30 per cent replacement (which is very high) such a production would correspond to a fleet of somewhere around 50,000 transport planes, which could carry 150,000,000,000 ton miles a year, or one-quarter of the total of railroad freight traffic. This should have deducted from it, however, two or three other uses for transport aircraft, principally their use for domestic passenger travel, transatlantic passenger travel and an important item of foreign sales. But even if we were to carry a passenger traffic equal to all the present Pullman traffic, and 80 per cent of all the old transatlantic passenger traffic, we would need considerably less than 5 per cent of this total for passengers.

Realism Held Needed

"We must be realistic, and see that the present size of the aircraft industry is so very large that it has a capacity to build enough aircraft to carry passengers galore, all first-class mail, and most railroad express, and LCL freight, and about one-third of the merchandise freight of the railroads. That is an uncomfortable thought for the railroads, but the uncomfortable thought for the air industry people is that since it is most unlikely that the loads that they can obtain will be anything like as great as this, the air industry

will consequently have to be accordingly very greatly deflated after the war.

"If the aircraft industry was to end up after the war at one-fifth of the size as large as the automobile industry was before the war—which is a very generous estimate—it would need to find a cargo carrying business of around 30,000,000,000 ton miles a year, which is 5 per cent of the total railroad ton mile movement. This need not scare the $30,000,000,000 railroad industry, because a large proportion of this 5 per cent, according to the course that history shows such transport movement takes, will be entirely new business and might not be taken away from the the railroads at all.

"Another reason for not worrying too much is a very serious headache that looms in front of the aircraft field, and that is the little item of the shortage of aviation gasoline. The figures cannot be given because they are information of value from a war standpoint, but let us not forget that operating such thousands of transport aircraft will use a mighty large amount of gasoline, possibly beyond our present capacity."

Loening said that while there are 238,000 route miles of railroad routes in the United States, today on the desks of the Civil Aeronautics Board in Washington are applications for over 500,000 miles of new air routes, twice as much as the whole railroad mileage in the United States. The Civil Aeronautics Board, he said, has "a major headache here."

A, B, C, D of Progress

The progress of Civil Aeronautics organization, he said, has been in A, B, C and D stages.

"A was the first stage in the years gone by when it was the Civil Aeronautics Authority—the CAA.

"B is when it became the Civil Aeronautics Board—the CAB—which is now currently conscientiously at work under great difficulties and shorthanded.

"C is presently what the Lea Bill is going to make it—the Civil Aeronautics Commission—the CAC.

"D is, of course, what this organization ought to be, finally once and for all, to dignify its already great size and great promise and great problems—the Civil Aeronautics Department—the CAD, with a Secretary for Air. We are apparently not going to reach the D stage quite yet, but actually we should have reached it long ago."

Problem of Monopoly

Loening speculated as to how many of the applicants for new airlines were going to get certificates. Are we to have, he asked, regional monopolies along the lines of utilities? Are we to have a monopoly of international air lines?

"Thousands of aviators and hundreds of thousands of mechanics are going to be returned from the war to peacetime pursuits. During the war (unlike the condition of the last war) they will have learned to like aviation, to fully realize its vast possibilities. They will, by the thousands, have flown the oceans, the mountain ranges, the continents of the world, and they will want to participate in building up our air empire. It is true, as many public men have pointed out, unmistakably true, that capitalism can run riot and ruin itself by too much monopoly. It does become fascism in business. It does become arrogant, autocratic, self-aggrandized. Curiously one of the things that monopoly capitalism does which is most difficult to combat is to be able to present a marvelous case for itself to the public.

A monopoly is, of course, more efficient

under certain circumstances, but then after all, it also would be more pleasant, no doubt, for many of us to be able to go to a public golf course and kick everyone else off, or to go to a beautiful public beach and have it to ourselves, or to preempt a stretch of road and say only we can drive on it. We could drive faster and we could drive safer.

"But—and here is where the monopoly idea in a democratic capitalism falls down—there are other citizens paying their taxes who want to have some fun also. There are other aviators returning from the world-wide school of aviation of this war who will want to start companies of their own, who have a right to use the air road—who also want to share in the fun and the thrill and the trials and the acclaim of having successfully developed airlines.

"What business must learn right now for this coming era is to acquire perhaps a slightly socialistic attribute. It must not only be willing, but must be eager, to see that there is a reasonable partition and participation by others in any new field of development like that of air transport.

"It is quite unfair to give to the pioneering companies a preemptive right to a transport field, because they could not have done a thing in such a field if it had not been for the other pioneers, who had devised their engines, devised their airplanes, devised and developed de-icers, variable pitch propellers, new instruments, stabilizers, new fuels and so on down the list. So in our consideration of aviation, both in the domestic and in the international field, let us rather take the other point of view that we cannot have a monopoly because we are a democracy—because it is against the very things we are fighting for."

Three Schools of Thought

He pointed out that there have been developed three distinct schools of thought on how we shall handle our international airlines after the war. The first is air transport monopoly. The second is the formation of a national company which will be the chosen instrument of the American public. The third is regulated competition. That is, several companies right along side each other keenly competing with each other on any routes on which the business warrants it according to the judgment of the governmental authority.

"Intelligently regulated competition is the proposition that is advocated as a policy by sixteen of the major airlines of the United States (in fact, all of the domestic lines excepting United; and, we are advised that American Export Airlines also endorse this proposal). The same is advocated by the Aeronautical Chamber of Commerce, by the aircraft manufacturers, and by pretty nearly everyone of experience, who has studied the problem impartially."

Britain and Russia

Another decision to be faced, Loening said, is whether railroad, steamship and bus companies be allowed to get into air transportation. He pointed out that British are currently having a violent argument on this subject, in the public press, in Parliament, and in reports of various different interests in aviation and in the steamship business, with such firms as the Cunard Company and the Furness-Withy Company advancing their intention of going into the air transport field.

Loening said it was obvious that the British are ranking their air future in the very highest top notch of their post-war problems, while at the same time the great continental contiguous reaches of Russia offer a tremendous challenge to air transport development. "It will be one of the most interesting items of sociological progress to follow, to see whether Russia in the vast reaches to which it will stretch its own air empire, will have just one government airline system, or whether it too will finally break down its communist monopoly and get the benefits of private enterprise competition.

"There is no more mystery about flying the oceans," he concluded. "We have outgrown all that. Before 1939 American pilots had made only thirty-three transatlantic flights. During 1943 literally tens of thousands of flights will be made over the Atlantic. I myself was present at Prestwick, Scotland, one day last fall when seventy-six American planes arrived from across the Atlantic in one short hour one afternoon. To those pilots, largely youngsters with only two or three hundred hours flying, this flight was just an extra long one—no romance, just tedious routine."

THE peace that will be won by the victorious arms of the United Nations can only be preserved by the exchange of goods, services and democratic culture among the countries of the world.

The Americas . . . especially the United States of America . . . have much to give to and much to gain from the post-war growth of commerce, agriculture and industry in the Union of South Africa, South West Africa Protectorate, the Rhodesias, Portuguese East Africa, Kenya, Uganda, and the Tanganyika Protectorate.

After the war these nations and territories will join with others in building a better world through reciprocal exchange of goods, services and ideas. The medium of exchange will be transportation. Ship and plane will *share* the task . . . each doing the job for which it is best suited with relation to time in transit, cost per ton mile and landed cost of goods.

In this great adventure the two means of transport will accomplish *together* what neither could do alone.

* * *

AMERICAN SOUTH AFRICAN LINE
INCORPORATED
26 BEAVER STREET NEW YORK
Pioneer American Flag Steamship Line to South & East Africa
(ESTABLISHED 1938)

Partners IN A GREAT ADVENTURE

Feeder-Line Franchises Now, Not after War, Is Plea of Airways Aide

A Pacific Coast Service Doing a Job To Help Win the Conflict Sees Role For Such Links After the War

By JAMES G. RAY
Vice-President, Southwest Airways

THESE statements, selected at random from recent news reports, must rank as some of the most important to be made in aviation this year.

"The Civil Aeronautics Board today announced filing of the 38th application for a feeder air line service . . ."

". . . asserted feeder air lines would be one of the manufacturing industry's most important post-war markets."

"Installation of flight strips seen as boon to small communities seeking direct air service . . ."

"A thorough investigation into the entire subject of feeder air lines has been scheduled by the Civil Aeronautics Board . . ."

They indicate industry interest in a movement, just getting into full swing, to correct our inadequate domestic air transportation system, which now provides the benefits of direct air service to only 6½ per cent of our cities and towns with more than 2,500 population. This inadequacy can be largely rectified only by the widespread development of feeder air lines.

Because of this indisputable fact, and because the attention of so many persons today is focused upon the romantic subject of international air lines, it is particularly heartening to find certain industry leaders devoting attention to feeder lines at this time. Let us quickly examine the facts of the case.

Before the war, our trunk air lines were serving 240, or 6½ per cent, of the approximately 3,700 United States cities in the "2,500 or more" population classification. At that time service had been suspended to numerous other cities which previously had received it, chiefly because their airport facilities had become inadequate. If these suspensions were necessary with DC-3 transport equipment, how many of the 3,460 smaller cities can expect to receive service from the Stratoliners, Constellations and other bigger, faster, post-war models? The answer is obvious.

Even if trunk lines were able to establish service to some of these cities, their total is not apt to be large. It is sound operating economy which has in the past, and will continue in the future, to dictate the need for trunk lines to concentrate on improved service between large cities.

Nevertheless, it creates a situation which should be corrected, for it is an indisputable fact that, as equal Federal taxpayers, residents of our small cities are as much entitled to receive the benefits of direct air service as our residents of large cities. If it thus is both right and desirable that nearly all of our population, instead of just one-third as is now the case, should have direct air service how, then, can it be accomplished? We believe that the an-

Cargo for a plane of a West Coast feeder line.

swer lies in widespread development of feeder air-lines.

On May 12, 1939, All American Aviation, Inc., began service on the nation's first feeder air line. It has operated daily ever since, with but one temporary lapse between contracts, to 115 cities and towns in six Eastern states.

All American has brought mail and express service to communities ranging in population all the way from 588 to 120,000 and it is interesting to note that income from the sale of air mail stamps alone in these cities more than pays the government for the cost of its flying.

There is an additional indication, over and above All American's proof that the pick-up system of feeder operation is practical, that feeder air lines can provide fast, safe, efficient, dependable service. It is found in the operating records of Southwest Airways' military feeder line, operated as a part of the Air Transport Command for the Army Air Forces' Service Command on the West Coast.

This line was established last November, yet already it has carried nearly one million pounds of freight, and its mileage each month has steadily increased to the point where it now totals more than 75,000 miles. Such a program has been carried out without once losing or damaging a single ounce of our military cargoes.

The importance of this feeder line service cannot be discounted. Our routes radiate from the San Bernardino and Sacramento Army Air Depots, much as the spokes of a wheel radiate from the hub. The line functions exactly as will feeder air lines after the war, except that it does not carry passengers. The Air Transport Command rushes vital shipments across the country to the Army Air Depots; our planes complete the carriage by air to the individual bases. In peacetime operations, feeder lines will supplement trunk lines in exactly this manner.

When it is remembered that huge bombers are grounded for days at a time, simply because a single small part needing replacement must be shipped from a distant point, a saving of a few hours could make a vital difference in war. It is a fact that our feeder planes reach certain bases two days—not two hours, but two full days—faster than would ground means of transportation.

It has been estimated that as many as seventy-five additional planes of all types possibly are flown every day in the areas our feeder line serves, as a direct result of our flights. Not only are we performing this most important wartime service, but also, by converting Waco cabin planes into efficient freight haulers, we have put these pre-war aircraft built for civilian uses, for which the military had little need, squarely into the war effort.

Thus we have established the problem: bringing direct air service to far more than 6½ per cent of our cities, by widespread development and establishment of feeder air lines. What, then, remains to be accomplished?

To begin with, let us refer back to our first and last news items—"Civil Aeronautics Board receives 38th feeder air line application," and, "thorough investigation into entire subject of feeder lines scheduled by the Board."

Meet your new next door neighbor

Remember when you were a kid?

You thrilled to tales of how explorers spent months getting into the darkest corners of Africa and other far-off places.

Today Africa is but an overnight hop by plane. There isn't a spot on earth more than 60 hours from your local airport.

But as the earth is *shrinking*, are you *expanding* your thinking in terms of post-war markets?

Actually, you can no longer afford to sit back and think that you've covered your sales territory when you've covered your own country or your own continent. For when the war is over, the whole world will be your market place.

So when you're thinking of new markets, we hope you'll think of us. For more than 150 years we have been serving exporter and importer alike with our complete banking facilities.

If we can help you with your present problems or your post-war planning, don't hesitate to call on us. Our Foreign Division, through any of its offices, will be happy to serve you.

The FIRST NATIONAL BANK of BOSTON

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Represented in New York by First of Boston International Corporation, 100 Broadway. *Overseas Branches:* Buenos Aires, Avellaneda and Rosario, Argentina; Havana, Santiago, Cienfuegos and Sancti Spiritus, Cuba. *Correspondent banks throughout the world.*

Undoubtedly much good will come from the Board investigation into the subject, particularly since its announced intention is to delve into every phase of feeder lines —methods of operation, types of equipment, airports and other facilities required, cost to the government, etc. We are confident that the records of the two aforementioned feeder lines now in existence will prove conclusively to the Board the right of this type of service to share heavily in any further development of air transportation.

But the Board should, we believe, do far more than reach just this conclusion. As soon as possible—and certainly before the war is over—it should decide which areas can benefit most from immediate post-war feeder operations, and also which companies are to operate in these areas.

There are many reasons why this action is most desirable. It would enable those organizations granted franchises to begin preparing themselves now, through additional statistical studies of the areas to be served, training of personnel, selection of aircraft to be used, etc., to give the best possible service to the public. It also will prevent the breaking up of organizations now so thoroughly qualified to perform this service.

For example, take the case of Southwest Airways. We have on file with the Board one of the original feeder air-line applications, calling for eleven routes serving 295 cities in the three Pacific Coast States of California, Oregon and Washington.

We have an organization of some 2,000 people working exclusively in the six activities which comprise our war-time effort —four military pilot training schools and a large aircraft and engine overhaul depot, as well as the aforementioned military feeder line. Among them are more than 375 skilled flight instructors, hundreds of experienced mechanics, flight dispatchers, meteorologists, radio operators, and so on.

When the war ends and our present activities no longer are needed by the government, if we still do not have approval of this or of either of our other two feeder line applications—for a Texas area and a helicopter service in metropolitan Los Angeles—our organization must be disbanded. Obviously it would be impossible for Southwest Airways, or any other company, to continue meeting its pay roll, if its employees were idle and no revenue was coming in.

On the other hand, if a franchise is granted now, under which operations were to begin as soon after the cessation of hostilities as possible, we will be in the opposite position. We can assure our 2,000 employees of continued employment; perhaps even make plans for adding to our post-war pay roll many more highly-trained men returning from the armed forces.

And feeder lines also can play a most important role in the nation-wide conversion from a war to a peace economy by speeding up the flow of goods from factories to small towns. They may lead to a reorganization of our distribution system for certain articles—particularly small replacement parts for automobiles, radio, refrigerators, etc. Since almost every small city in the country will be no more than a few hours flying time from a large, key air-terminal city, it seems likely that large inventories will need to be maintained only in the big cities. Feeder lines can deliver commodities wherever needed on a few hours' notice.

We know from All American Aviation's experience that it is not necessary for a community to have an airport to gain a place on a feeder route, provided it does not have to have passenger service. Through use of special pickup and delivery devices already perfected, mail and express can be handled satisfactorily while planes are in flight.

Other cities and towns desiring passenger service as well, may turn to flight strips, which can be established and maintained at considerably less cost than can be present-day airports.

Discussing the possible use of strips to meet "off airline" communities' demand for direct service, Fred E. Schnepfe, Director of Flight Strips Division, Public Roads Administration, is quoted as saying:

"The installation of flight strips along the main highway adjacent to a small community will be the wisest course to pursue in providing landing facilities for these communities."

And, as town planners may soon be discussing, these strips should be parallel to the routes. If a route is not straight through the town, the landing strip should be parallel with one of the legs, or so

located as to cut across the enclosed angle. For example, if the feeder route enters Airtown from the north and leaves toward the east, the landing strip should run north and south, parallel with the north and south leg. Or, it could run east and west, or in a direction that is generally northwest and southeast.

These landing strips, it is believed, should have their passenger loading facilities at approximately midway of the strip to eliminate considerable taxiing, and thus shorten the time the feeder plane has to spend on the ground.

Another reason for immediately granting of feeder-line services is to permit such public utilities to approach aircraft manufacturers on a sound basis, to work out designs of the ideal feeder line planes. We believe from our preliminary work in this direction that it should be a twin-engine model, and be capable of carrying ten passengers and from 500 to 600 pounds of mail and express. Passengers' safety and comfort should compare to that on present day airliners.

Several manufacturers already have done some preliminary development work on this type of aircraft. Assurance now from the government that lines will be established, will also assure manufacturers it is practical to continue this work. If the decision is made now, not after the war, at least several of these factories can retain part of the personnel that otherwise would have to be released with the Armistice, to handle this production.

All of us know there is bound to be an employment lag of serious proportions with the cessation of hostilities. We must find jobs for the men returning from the service, and we must find new positions for at least 50 per cent of those now employed in strictly war industries.

Feeder air-lines can provide a considerable number of new jobs. By their purchases, they will help make it possible for aircraft manufacturers to retain workers. These same planes will require props, navigating instruments, tires, fuel, lubricants, and so on, assisting those related industries to maintain production.

This new source of orders will continue to have an important effect on employment. And it will have its first heavy effect—if decisions are made now—in the all-important first years immediately following the war, when the biggest adjustments must be made.

Southwest Airways Company, now operating an air-cargo service for the Army on the Pacific Coast, has on file with the Civil Aeronautics Board an application for permission to establish feeder air line service in the states of California, Oregon and Washington. The contemplated service would include eleven routes, providing air cargo service for 295 cities.

Since feeder operations are still a somewhat new and unknown subject to so many, it may be of interest to describe in more detail at this point a typical feeder line. In this respect, our West Coast application may be assumed to be a good example.

As aforementioned, it would establish eleven separate routes. Three of these would originate from Los Angeles, four from San Francisco, and two each from Portland, Oregon, and Seattle, Washington. The routes would bring direct air service to 281 cities not presently receiving it.

Each route would provide for carriage of passengers, mail and express, fulfilling a complete public function. To make possible this triple service, and still maintain the airplane's vital advantage over ground means of transportation, which is speed, only certain of these cities would receive passenger service at the outset.

Those which did not, would receive mail and express service by the use of air pick-up. Tests have been run where passengers have been carried through simulated pick-ups, and there was found to be nothing in the pick-up maneuver that was objectionable. Practically without exception, these test passengers indicated that they would much rather fly through a pick-up at a given station, than to make a landing at that station.

If we take as an example, a pick-up route 300 miles long, serving thirty towns, passengers would much prefer to be flown through pick-ups at all of the towns, except the half dozen where the exchange of passengers requires a landing, than they would to land at all thirty stations. From a safety standpoint, there can be no argument that the pick-ups involve more risk.

In All American Aviation's operation, which I was privileged to help establish and operate for two years, more than 200,000 pick-ups now have been made without an accident that could possibly have resulted in injury to passengers, had they been on board.

During this same period, All American has made a far less number of landings, and a majority of these on large terminal airports. Nevertheless, more accidents—and accidents of a more serious nature—have occurred while making landings, than while making pick-ups. This should prove that if the entire service had been rendered by making landings instead of pick-ups at each of the points served, the number of accidents would have been far greater.

Feeder flights, under our application, would depart from the trunk air line terminals in the morning, spaced according to the number of flights scheduled daily over each route. They would distribute mail and cargo, and deliver passengers, brought to the terminals by the trunk airline system. Each plane would make a return flight later the same day, to collect outbound passengers, mail and express from the smaller cities served.

Not only would this system make it possible for passengers and mail to leave almost any Pacific Coast city in mid-afternoon and be in New York City the following morning, but also it would provide high-speed service between cities along the various routes. Thus, feeder lines, rather than become competitors of trunk air lines, actually would supplement and complement them, by feeding them passengers, mail and express from new, untapped, potentially-rich territory.

Undoubtedly the routes as we have proposed them are only a start. We believe that the need for feeder air line service will grow very rapidly, and that the system of feeder routes will expand accordingly to keep abreast of this great need. Eventually, there is no reason why almost every city in the United States should not have as much air service, day or night, as it can utilize.

Largest Air Cargo Plant In World Turns Out Flying Box Cars for War

Giant Wooden Structure Produces Big Ships Which Have Carried Notable Men and Merchandise

THE mammoth new Chicago plant of the Douglas Aircraft Company, called the world's largest cargo-plane factory, has been designed and tooled for the sole manufacture of C-54 "Skymasters." This Chicago plant is scheduled to produce great numbers of these four-engined giants for the transportation of vital arms and supplies to our many far-flung battlefronts throughout the world.

The Army Air Forces selected the Chicago site, then the Area Engineers of the U. S. Army stepped in to convert this 1,600-acre tract of farmland into the largest cargo-plane factory in the world.

The 30,000,000 board feet of lumber used in its construction would build approximately 4,500 medium-priced homes. Its 250,000 cubic yards of concrete would supply the foundations for 5,000 such houses; and its 500,000 square feet of windows would furnish the glass for 2,500 of these homes.

This mammoth aircraft plant will require in excess of 1,000,000 gallons of water each day, which, in turn, would service 4,000 average homes. The 20,000 kilowatts of electricity used each day would supply the heaviest demands of 5,000 such houses. Eleven carloads (576 tons) of coal will be consumed on a capacity day.

This vast war plant has its own airfield and airport. In addition, this great plant has its own railway system, its special locomotive operating on 9 miles of track.

Called the largest wooden structure in the world, this plant has as its chief feature split-ring connectors and shear-plates throughout. The now-obsolete bolt connection was never satisfactory, because shear and pressure were concentrated in the small area of wood around the bolt. The new split-ring technique, however, distributes the pressure across the full width of the timber, and takes full advantage of wood's great compression strength. It is this ring-connector which has made it possible to design heavy structures around timber instead of steel.

Since it was practically impossible to obtain large-dimension timber for the main supports, specially-laminated columns were fabricated, casein glue being used as the bonding agent. Tremendous pressure was applied during the processing of these giant uprights, whose strength surpasses that of solid timber.

It is due to this new development in timber construction that the Austin Company, designers and builders of this project, has been able, in coordination wtih the U. S. Army Engineers, to save 30,000 tons of steel in constructing this world's largest all-timber building.

Vital Material Saved

The 30,000 tons of steel diverted to the manufacture of various war products through the almost sole use of wood in this plant's construction will make possible the building of many types of armament for men at the fighting fronts.

The main assembly plant is the last word in aircraft manufacture design. Built under supervision of the Army Engineers, this single daylight plant contains practically no critical war materials except the steel pipes and valves in the steam lines and sprinkler system, although it is provided with advanced tooling, overhead cranes and conveyors, and all the other facilities for efficient operation.

The modern fluorescent lighting system alone saved 135 tons of steel by the use of pressed wood reflectors, surfaced with a synthetic enamel, instead of porcelain-enameled steel, at no loss in lighting efficiency.

Even as the plant's structures started rising into the air, key men of the Douglas Company had begun to arrive from the home plant in Santa Monica. John D. Weaver, plant manager, was the first on the scene.

Not waiting for completion of the main assembly plant, Weaver ordered production to get under way as soon as each section of the building was set up. As a result, no sooner was the concrete hard, than massive machines, jigs and tools were set up for operation. This method of production follow-up enabled Douglas workers to set an exhilarating tempo and pass the resulting enthusiasm on to the new worker. Hence, there is not the customary time-loss between the end of construction and initial production.

The C-54's built in this Chicago plant have their own story. Fifteen months after the first of the C-54 series rolled off their original assembly line in the West, they were flying the North Atlantic to England, the South Atlantic to India, the South Pacific to Australia, and the Northeast Pacific to Alaska, carrying vital war material to all battle fronts.

This is the plane that carried President Roosevelt on the land hops of his historic visit to Casablanca, Queen Wilhelmina of Holland from England to Canada, General Giraud from North Africa to Washington, and Ambassador Davies from Washington to Moscow and return, as well as other notables, such as the Crown Prince of Norway, Madame Chiang, and T. V. Soong.

Unpublicized Flights

Where it is performing most notably, however, is on its routine, but unpublicized, long-range flights with war cargoes ranging from dynamite to airplane parts that are too big to fit into any other plane. Also, it has been successfully tested for the job of transporting tanks and field pieces strapped to its belly.

With cabin dimensions approximating the size of a standard box car, it carries a normal pay load of 20,000 pounds on ocean hops and considerably more on shorter trips. On its maiden flight from San Francisco to Brisbane, Australia, it established new world records of thirty-five

Claimed to be the largest of its kind in the world, the Douglas Skymaster has already proved itself as a freight and troop carrier in the Southwest Pacific. The C-54 can carry fifty fully equipped troops or, alternatively, loads of ammunition, jeeps and small cannon. The main cabin is provided with a large loading door and a floor reinforced to carry heavy loads. An ingenious derrick is used to load air cargo.

hours flying time and thirty-nine hours elapsed time, stopping only at Honolulu and one other island, and maintaining an average speed of 202 M.P.H.

According to Capt. M. P. O'Leary, veteran ATC pilot, in War Department special Employee Publication Release 2-C-870, he has flown schedules in the C-54 that would have been beyond human endurance in a ship that was less easy to handle. Captain O'Leary, former air line pilot with 3,000 flying hours to his credit, has logged nearly 200,000 air miles at the controls of the Skymaster, including seventeen trans-Atlantic crossings in twenty-one days.

Missions of all kinds have been delegated to this airplane. It has carried hydroelectric plants in small sections, a ten-ton fuel truck cut in three parts and later welded together, hospital units, kegs of dynamite covered with burlap (with three Army generals sitting on top, perhaps unaware of what was underneath), arms, supplies, jeeps, field guns, torpedoes, official records and mail from the folks at home.

The C-54 represents exhaustive prewar experiments in transport aviation, conducted by Douglas at a cost of $8,000,000.

The first C-54 flew from a Douglas plant eight weeks after our entry into the war. And despite capacity orders of bombers and smaller transports, scores of great C-54's have been produced at the Douglas Santa Monica Plant, while the great plant designed for their exclusive production was being built and tooled near Chicago.

Among recent adventures of the Skymaster in combat zones was the trip to Port Moresby of a C-54, which was enlisted to rush badly needed airplane spares. This marked the maiden flight of this craft to the Southeast Pacific, and a new air record for the California-to-Brisbane legs of the trip. The plane was piloted by Captain Jack O'Brien of the United Air Lines and Ben O. Howard, assistant to Donald Douglas, who accompanied the mission as a technical adviser but handled the controls one-half of the time. The only mishap of the momentous trip was a 10-cent light fuse blow out.

World Air and Sea Transportation Problems Discussed by Chamber of Commerce Group

QUICK conversion of the present air and ocean transportation services to peacetime use, under private ownership, has been advocated in a post-war program recently drawn up at Washington by the International transport committee of the United States Chamber of Commerce. Workable national policies were held essential for overseas trade routes by air and sea.

It was declared that the session showed large areas of unanimous agreement by shipowners, shipbuilders, airline operators, aircraft manufacturers, exporters, importers and others interested in international trade.

The viewpoints presented included those of the American Merchant Marine Institute and sixteen domestic airlines, which recently joined in a statement on foreign air policy. Ideas of Government agencies were given by members of the United States Maritime Commission and the Civil Aeronautics Board.

In general, the policies established by the Merchant Marine Act of 1936, which contemplate the development of a privately owned and operated American merchant marine, were regarded as offering a sound basis for the framing of a post-war program.

Provision for a continous ship construction program to meet the needs of world trade routes was held to be necessary.

The organization of international air services to be operated by United States citizens was discussed from a wide range of viewpoints. As in the case of merchant shipping, the problem of disposal of surplus commercial type planes now utilized for war transport purposes was recognized as of great importance and it was agreed that disposal policies should be such as not to interfere with a reasonable program of future commercial airplane construction and continuous development of improved types.

Government officials who met with the committee included Admiral Emory S. Land, chairman of the Maritime Commission and War Shipping Administrator; Capt. Edward MacAuley and Thomas M. Woodward, members of the commission; L. Welch Pogue, chairman, Civil Aeronautics Board; Edward Warner, vice chairman; George C. Neal, general counsel, and Robert L. Bias, assistant to the chairman of the board.

4-engined all cargo **CLIPPERS** may come before peace

TRANS-OCEAN cargo planes are already in war service . . . Ton after ton of vitally-needed war materials crosses the Atlantic, the Pacific and the Caribbean every single month.

Many of the air routes across those three oceans *were first pioneered by Pan American's great 43 ton four-engined Clippers.*

And the minute that new, much larger, all-cargo Clippers are made available for civilian use, it will be logical to look to Pan American for superb overseas Commercial Air Freight and Air Express.

Pan American has the "know-how," and the experience built up by over 185 million miles of over-ocean flight. Pan American pioneered both overseas Air Freight and Air Express.

All that is lacking today are the necessary new air transports. And since these may come *before peace,* now is none too early to begin planning for export and import *by Clipper.*

Pan American World Airways System

BUY WAR BONDS

Wings over the WORLD

PAN AMERICAN WORLD AIRWAYS

The World Will Emerge From an Air War Into an "Air Peace"

So Declares an Executive Of the Rubber Industry As He Plans for Tomorrow

By JOHN L. COLLYER
President, The B. F. Goodrich Company

AVIATION'S war-time performance has established the inevitability of cargo transport by air as a prominent feature of post-war commerce. The truly magnificent feats of delivering precious cargoes by air give dramatic substance to almost any predictions being made as to the ultimate role of the airways in post-war commerce.

Yet it is important that proper balance be struck between imagination and reality. And it seems to me that there is an abundance of each of these commodities to be taken into consideration in appraising the future of air cargo transportation.

In striking such a balance it is fully as important to let imagination hold sway and to appreciate the uttermost extents to which man's ingenuity might carry him, as it is to temper those imaginings with frequent recourse to plain and solid arithmetic.

In seeking to read the future in present-day wonders—especially in aviation matters—we must give proper weight to the tremendous distortion that war puts upon all values, in particular the premium that it puts upon speed. The world is moving faster and faster all the time, but even in the most modern eras of peace it certainly will not maintain all of its war-time peaks of urgency.

I would not undertake to predict a definite pattern of post-war cargo transit by air for any given date in the future. That is not for want of confidence that there will be tremendous, even fantastic changes in this picture, but rather because such changes are so sure to occur. The Civil Aeronautics Authority already has predicted that most large airports in the United States will reach "saturation" within five years after the war.

NATURALLY, it is the performance of the U. S. Army and Navy air transportation systems that have provided the bulk of actual evidence as to the wonders that can be performed by air express. Those systems now extend over a total of about 175,000 miles, greater than all the world's combined air transit systems, military and civilian, was in 1939.

The Air Transport Command flies more than a million pounds of cargo a week; its giant cargo ships have made trips from this continent to England in nine hours and from Australia to California in thirty-three and one-half hours; and a complete hospital was flown to Alaska in thirty-six hours after the Japanese raids on Dutch Harbor.

As for some rather sizeable tonnage performances—in one eight-week period the following commodities were moved by air from China to India: thirty-two tons of bristles for the Navy; seventy tons of silk

John L. Collyer

for parachutes; forty-seven tons of tin, and seventy tons of tungsten.

Cargo carried into the fighting zone by the ATC has ranged from plasma and vaccines and drugs to jeeps and light tanks. Returning planes have brought tungsten, block mica from the Far East; platinum from the Persian Gulf; beryl ore, quartz crystals and industrial diamonds from South America; and even some crude rubber from Brazil. The element of urgency, the war-time premium on speed, is obvious enough in all those examples.

The other day a friend of mine—not a hopelessly conservative fellow, either—sagely commented, "there'll always be a freight train." I for one will accept his statement as a safe one, though I am well aware of the amazing progress made in other modes of transportation. Eventually, and perhaps not too remotely, we may see great trains of towed gliders darkening the skies, mammoth flying wings transporting huge volumes of freight, helicopters delivering packages practically from door to door, and the rest of the seeming Jules Verne wonders that some advocates of air cargo say are "just around the corner."

But railroads, trucks and ships undoubtedly will continue to move the bulk of the world's goods for some time to come, and probably never will these earth-bound forms of transportation lose such bulky low-tariff cargoes as coal, lumber, cement, petroleum and similar heavy materials to air transport.

IN the world of the near future the particular advantages of air transportation for cargoes will be fitted into the general movement of goods so as to provide the most advantageous and coordinated all-around system. At least one railroad in this country already has applied officially for authority to operate passenger, mail and freight service over ten separate air routes, and the application indicated that it intended to use helicopters in some phases of its pick-up service.

All of us have been intrigued by the entirely new concept of world map that has been appearing in various forms and which demonstrates, among other things, how much closer points on this side of the world are to points on the other side when one takes the air route of the future up and over the Arctic circle.

Major General Harold Lee George, in command of the Air Transport Command, is one who foresees the day when Americans on world tours may stop in hotels

De-Icers undergoing tests in a B. F. Goodrich refrigerated wind tunnel.

De-Icers in the process of manufacture.

perched on Arctic ice caps. To many a layman, the over-the-Arctic plan for by-passing the longer mileage of the Atlantic Ocean route between here and Europe may seem to be one of the most visionary of the predictions of things fairly soon to come in aviation.

It is true, of course, that some very extensive arrangements will have to be made in the matter of establishing refueling stations and navigation aids over the polar reaches before this thing will be feasible. But even now freighters and bombers en route to combat areas on the other side of the world go right across central Canada and follow a "high" great circle route via Greenland and Iceland.

Furthermore, those familiar with the operations of ATC in the north sub-polar country, right through the worst winter weather, are nearly as convinced as Major General George that the "up-and-over" route is utterly practical. Most of the talk about over-the-pole routings has been in terms of passenger traffic, to be sure, yet the same advantages of this "new geography" would apply to the transport of cargo.

The OWI, in a comprehensive report, predicted that by 1945 transport planes in the fifty to sixty-ton class would be plying the airways in this country "in quantity." Such planes, it said, would be able to carry a fifteen-ton load on a routine Chicago-to-New York trip at a speed of 250 miles an hour.

There is an interesting footnote to the general subject of post-war air cargo transportation in the fact that 34 per cent of the participating firms responded in the affirmative to the question "Do the products you export lend themselves to shipment by air transport?" in a recent survey on Latin American commercial trends by the foreign department of the National Association of Credit Men.

The question that overshadows all others, of course, is whether the particular and outstanding virtues of speed and "get-there-ability" of the airplane will make it a serious and large-volume competitor of other forms of cargo transportation in the foreseeable future. The Civil Aeronautics Administration frankly says that the cargo plane will not drive other forms of transportation out of business after the war. But, unquestionably, there are many assignments it can handle in superlative manner, some of them tasks which actually could not be done at all without benefit of air-borne traffic.

A BIG share of the immediate post-war job of air freight may well be the opening of vast new undeveloped areas on the earth's surface where pioneering remains to be done. It can take mining and other heavy machinery into isolated jungle areas

so remote that the cost of importing machinery and equipment by any other means would be prohibitive.

The economic soundness of this has been proved over and over again, both before and during the war. In New Guinea, for instance, aircraft brought in gold-dredging machinery that could be delivered by no other means; in remote sections of the Alcan highway vital materials and equipment which would have required 150 dog teams to transport were brought to the construction site from the railhead by plane; in Canada it was possible to extract vital radium from vast pitchblende deposits because equipment was flown in during the brief season when construction was possible.

One of the most frequently drawn word pictures dealing with the future of the airways is that of skies veritably criss-crossed by "flying freight trains," multiple tows of cargo-carrying gliders. We have already had one glimpse of this future possibility in actuality when, in July of this year, a fully-loaded freight plane glider with an eighty-four-foot wingspread was successfully towed across the Atlantic from Montreal to England, 3,500 miles, in twenty-eight hours.

Unquestionably, this was an important milestone in air cargo transportation. Yet it does seem as though there is a wider gap between this actual performance and some of the predictions that are being made concerning freight trains of the air than there is between fact and fancy in other phases of air freight. Only the other day there was a prediction published to the effect that aerial freight trains of the future would do their switching without coming down to the ground.

Air freight's future commands the interest and attention of persons in virtually every industry and business, either as prospective clients for some phase of the new service, or as affiliates of aviation through the inter-relation of industries. The layman, in thinking of industries intimately participating in aviation's advances, may well be engrossed by the fantastic production step-ups in aluminum, or the manufacture of super-power engines. But we in the rubber industry are proud that ever since aviation's fledgling years our industry has participated in and contributed to its growth.

Rubber experts for many years have worked closely with aviation engineers to develop stronger, safer tires as the size of planes and the speed of landings have increased. Now, when planes far larger than anything that has yet been seen are on aircraft manufacturers' drawing boards, when the likelihood is increasing that aircraft of the not-so-far future will be carrying loads twice and three times present limits and landing them in remote areas where American style super-airports do not exist, the rubber industry's aeronautical experts are keeping pace.

A recent development that gives great promise is the use of multiple-tired wheels in landing gear to help ease the greatly increased landing impact. Another involves the endless-band tractor treads developed by B. F. Goodrich engineers. These high-speed but rugged track-laying belts, which have licked the roughest terrain when used on half-tracks and tank destroyers on African and other battlefronts, may soon be enabling giant air transport planes to land and take off safely and surely whether the airport be built on shifting Sahara sands or in boggy Burmese jungles. Our aviation specialists are experimenting to determine how they may best be used.

To gain unquestioned public acceptance any means of transportation must give assurance of its safety and reliability of operation. In aviation the attainment of these goals requires, to a greater degree, perhaps, than in other forms of transport, the successful conquest of natural hazards. One of the major hazards of flight has always been ice formation, which may occur in tropic climes as well as arctic ones. It becomes an even greater threat as modern planes are designed to fly at higher and higher altitudes, and as operations extend to all parts of the globe.

The De-Icer, a rubber sheathing containing inflatable cells which when inflated and deflated in an alternating rhythm crack and peel off the ice which is carried away in the slip stream, is now in use on United Nations battle and transport planes the world over. The De-Icer was developed in the B. F. Goodrich laboratories after Dr. W. C. Geer, its inventor, had made an exhaustive investigation of heat and chemical methods of ice control.

With heavier planes, higher landing speeds and the shorter, less dependable runways that are likely to be encountered

both on emergency landing fields and makeshift pioneer airports, the ability to "stop 'em rolling" will be—is now, in fact—as vital as the power to "keep 'em flying."

As an indication of how rubber engineers are keeping ahead of this development, the wheel and brake department of B. F. Goodrich's technical division has recently improved our expander tube brake to a point where it is able to absorb twice the energy it was designed for originally, and at the same time have longer life and give better service.

Evidence of its great stopping power is seen in the statement of testing engineers that if a modern streamlined railway coach were equipped with a pair of bomber wheel-tire-brake assemblies and a tail wheel such as that furnished for the Flying Fortress, the car could be brought from its top speed of 120 miles per hour to a dead stop in the space of about two standard city blocks.

From these few references it is easy to understand why we in the rubber industry have a keen interest in the assuredly great period of development that lies ahead for aviation and air cargo transportation. They are typical examples of progress achieved through inter-industry teamwork.

The magnificent triumph that American industry has scored in designing, producing and moving the instruments and materials that are doing so much to insure victory in this war is, likewise, a triumph of teamplay and co-operation.

The wonders of aerial transit achieved in war can, and I am confident will, be matched and exceeded by those that the enterprise and teamwork of free peoples can achieve in the coming period of peace.

For it will be an Air Peace, fully as much as this is an Air War!

Boston Prepares to Be Host To Over-the-Atlantic Cargoes

EVERY city in the nation is asking, "What will happen to the aviation industry after the peace is won?" Not least among the cities asking the $65 question (make it 65 million) is Boston, home of some of the nation's first navigation experts, and now willing to be the home port of some of the great aerial navigators of the future.

Boston, a great transatlantic and fishing port, and used to thinking in terms of oceanic great circles, is now thinking of great circles above the earth and below the stratosphere. Boston has in mind the enlargement of its already lively airport. Plans have been submitted for the expansion of Logan Airport, East Boston, to the Governor's Council for approval.

The next step will be to advertise for bids for the fill which will convert mud flats in the East Boston-Winthrop area into a solid extension that will enlarge the airfield from 270 to about 1,200 acres.

The basic fill will cover enough area for four runways, three of which will be 7,000 feet long and suited for the take-offs of heavily-loaded transatlantic planes; and a fourth will be 5,000 feet.

Powell M. Cabot, chairman of the Massachusetts Development and Industrial Commission, declared yesterday the blueprint for the new airport provides hard-surfaced runways 200 feet wide and 10,000, 8,000 and 7,000 feet in length.

It also provides space for taxi-strips, to enable planes to leave the runways to approach projected loading platforms, for areas suitable for the landing and take-off of helicopters, and a base for hydroplanes.

An early phase of the development of the airport under an initial $4,750,000 legislative appropriation, Cabot said, will be construction of 20,000 feet of runways, adapted to planes of gross loads up to 300,000 pounds.

The port will afford direct communications to three railways, the modern warehouses which will be erected to meet the needs of commercial shippers, and a new wide thoroughfare to facilitate the flow of traffic between the air base and Summer tunnel.

The design of the new project, which has approval of the state aeronautics board and the Governor, takes into consideration the importance of wind directions and velocities and is so arranged as to avoid any of the disadvantages of the topography of the area.

A hydroplane base will be placed at the northeasterly portion of the area to be built up, but the space for helicopters will be located at another point, safe from runways used by other types of planes.

The new area will be constructed of fill recovered from the harbor. Public works officials estimated the initial stage of the development would see handled about 10,000,000 cubic yards of material and that this fill, when graded, would be topped by material taken from Governor's Island.

Regulated Competition For Overseas Routes Urged by Export Airlines

President of Transatlantic Air Service Opposes Any Monopoly

By W. H. COVERDALE
President, American Export Airlines

WHEN tomorrow comes and the war is ended, this nation will need—and quickly—air transport services between our country and practically all of the other nations of the civilized world. Because we are Americans, we naturally think first of American air transport services, flying American-built planes, manned by American crews—services directed and developed by American enterprise—services operated as the finest and swiftest and safest and best of all the air transport services provided by any nation of the world.

But as cooperative citizens of a new world, we do not want more than our share of this global air transport business—*but we do feel entitled to our full share.*

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The planning and preparing for this postwar activity is one of the foremost problems facing this country and the world in general. Like all problems involving international relations, it has been and will continue to be an argumentative subject. At present it is one of the most momentous projects under discussion by governments, by transportation groups, and by business in general, both at home and abroad. As a result, various American air transportation groups from time to time have gone on record in regard to how this government should handle this problem. But there is still confusion.

We of American Export Airlines believe that the following open statement will add to the public understanding, and at the same time clarify our position—in other words, help *"CLEAR THE AIR."*

What Has America to Offer?

SO far as aviation is concerned, the answer is, America has everything—and in abundance: (1) operating knowledge and experience in management of commercial air transport, greater and broader than that possessed by any other nation; (2) giant aircraft factories, capable of designing and building the finest, fastest, and best all-around transport airplanes the world has ever known; (3) an able and energetic nation of 130,000,000 people, world conscious as a result of the war, willing and capable of producing the products the world will need so badly—eager to exchange its wares in the marts of the world—and ready to travel.

These are the prime requisites necessary to establish American leadership in international air transportation. Let us take a good look at these assets, with special ref-

erence to the "know how" of our American flag, air transport companies, both domestic and foreign.

There are nineteen United States airlines. Two of these operate in the foreign service and hold CAB certificates of convenience and necessity for overseas air transportation—American Export Airlines is one of these two companies. The seventeen other companies operate in the domestic field and hold CAB certificates for such operation. There are also other business groups with new capital interested in entering this new and rapidly growing industry.

All nineteen airlines are now engaged in aiding the war effort by transporting passengers, cargo, and mail within the country or to all sections of the globe. All of these airlines have been loyally devoting their individual efforts and ambitions to military purposes and the all-important task of winning the war.

Many of the domestic airlines, when the war is over, will want to expand into the international field—as evidenced by the fact that a good many of them already have filed applications for overseas routes.

Monopoly or Competition?

While there may be a general desire on the part of the domestic airlines to enter the overseas field, there are two schools of thought as to how that problem may be met.

One school advocates formation of a single, government-sponsored, monopolistic international airline, in which all American flag airlines could, if they wished, hold an interest, based on some, as yet unannounced, formula. American Export Airlines does not support this plan.

The other school of thought strongly opposes the placing of all of the development of our international air transportation in the hands of a single American company—a "chosen instrument," or a monopoly. This school believes in regulated competition consistent with the policies and standards established by the Civil Aeronautics Act. American Export Airlines supports this plan. Furthermore, we do not believe that the alternative to monopoly would be unbridled competition. Far from it!

A definite government policy, firmly and impartially administered, can give the country the proper type of well-regulated competition—in the foreign as well as the domestic field.

WE are, and always have been, unalterably opposed to the thesis of monopoly. We believe that the fostering of monopoly would almost certainly result in government ownership. We do not believe that the Old World practice of fostering a government airline would result in adequate advancement of American aviation. Our country is too big for such a system.

Our company and sixteen domestic airlines on May 18 of this year signed a declaration of policy against monopoly, and presented it to the CAB.

We strongly support this thesis of competition. By competition we mean that any American flag airline interested in providing air service beyond our borders and into foreign countries, should have the right to make application to a properly constituted government body, such as the Civil Aeronautics Board. We believe that open hearings should be held by such a body, in accordance with the principles of free enterprise. The number of companies that would emerge with certificates from such hearings would depend upon the ability of the applicants to qualify, and in addition, upon the judgment of the Civil Aeronautics Board and the President of the United States, as to the number of routes and services required in the public interest.

Such orderly procedure follows the "American Way" of developing a new and vital industry. It encourages competition to an extent necessary to assure sound development—and yet regulates it to the degree that destructive "cut throat" competition is eliminated.

It is my earnest belief that the United States will get out of postwar aviation just what its government and the public are willing to put into it. Regulated competition, as opposed to monopoly—combined with private ownership—and with adegovernment and public support, will enable United States aviation to secure for America its rightful share of the air commerce of the world in the postwar period.

[*Mr. Coverdale was quoted in at least one daily paper, following his declaration against monopoly, as saying he saw no reason why steamship lines should be restricted from operating air lines, since air lines are a natural extension of steamship companies.*]

Stephens College Educates Women For Air Transport Jobs

Men Have No Monopoly On Opportunities Now Unfolding

DO the airlines hire women? If so, what positions are available? Why don't the colleges teach aviation? Where can I find out more about commercial air transportation? Why doesn't Stephens College have a course in aviation?

These were just a few of the questions that the girls at Stephens College in Columbia, Mo., were asking in the fall of 1941. Pearl Harbor was just a Pacific base, the tremendous demand for women in industry was still a suffragette dream. The cauldron of youthful aviation enthusiasm was already beginning to boil over. Something had to be done.

Farseeing Stephens President James M. Wood, felt that these questions and this interest were indicative of a trend and that something must be done. It was decided to ask for the help of the five airlines that serve Missouri: Braniff, American, Mid-Continent, Chicago & Southern and Transcontinental & Western Air. As usual the airlines were more than glad to cooperate, and a plan was worked out whereby each line was to furnish a certain number of lecturers so that one class period per week could be held on the campus.

T. B. Wilson, chairman of TWA, came from New York to be the first visiting professor. He was followed by metorologists, pilots, dispatchers, communications cations men, reservations men, traffic representatives, stewardesses, and, in short a representative of every different branch of airline organization.

The girls took voluminous notes, passed rigid examinations on the subject matter of the lecturers, asked innumerable questions of their "one day profs," and before the year was half over, were receiving numerous offers of positions with the airlines.

Dr. Wood then stepped back into the picture with a plan to incorporate aviation into the regular curriculum of Stephens College. Kenneth Newland, a member of the faculty who had had considerable aviation experience, was chosen to put the plan into action.

The active cooperation of the airlines as sought and gladly granted by 12 of them. This meant that they furnished copies of their Traffic and Operations manuals and regulations plus any other material that would be helpful in a training course. Mr. Newland spent the summer of 1942 working and visiting with the various cooperating lines, setting up courses, writing workbooks, organizing an aviation library and selecting faculty. He was greatly aided in this by a board of advisers made up of representatives of the various airlines who came to the campus and through much discussion finally concluded what a really good airline employee should know. This determined the content of the course.

To train a girl for a maximum contribution to the airlines involved not only specific work in one phase but also a good general background in aviation as a whole and in the growth and development of commercial air transportation and airline organization.

T. B. Wilson, board chairman of TWA, being congratulated by two comely Stephens College students for his part in launching the air transportation course.

As a further step in this "air-conditioning" of the campus and students, a plan was evolved whereby those girls interested in aviation would take special sections of science, geography, speech, secretarial work, etc., in which the emphasis would be placed on the aspects of the subject that had anything to do with aviation. In this way, they were becoming infused with aviation, they were learning a new vocabulary and new concepts of science, economics, politics, language, literature, etc. Geology became a study of the weather, not only in this country, but all over the world. Geography became the where and why of peoples and nations, with the view to study the economic aspects of world cargo after the war; the airliner will take this product on its outbound flight and will return loaded with this vital product.

So a graduate from the Stephens Airline Course:

1. Will have been chosen to take the course after passing a battery of tests to determine if she is suited for it.

2. Will have had to maintain above the average grades in her preliminary general education courses.

3. Will have been through the speech, grooming and clothing clinics to see that her speech is perfect and her appearance to her greatest advantage.

4. Will have had courses in Basic Airline Traffic Procedures, Introduction to Aviation, Meteorology, Aviation Geography, Telephone Technique, Speech, Typing, Aviation Shorthand, Teletype, Radio Law, and Pre-flight Aeronautics in addition to her regular general courses.

5. Will be trained and ready to take her place in a changing world and in an industry which needs her and in which there are endless opportunities for women.

Aviation has already achieved and taken its proper place in the regular curriculum of Stephens College. At the end of the first year some 1000 students will have taken aviation courses. Graduates are already proving their abilities in fine positions and further proving what the airlines have felt all of the time, namely, that in certain positions women could do as well as men and in some cases better.

Four Transports Are Visualized For the Future

Types of Planes Should Be Kept to Minimum

By William Littlewood

Vice-President—Engineering, American Airlines, Inc.

IN discussing the types of transport airplanes to meet future needs, we must recognize the great desirability of keeping the number of types operated by the airlines, and most particularly by any one airline, to an absolute minimum to reasonably meet the varying requirements. We should, I believe, concentrate on not to exceed four types of prime importance admitting the possibilities of several additional types of lesser importance to meet more unusual needs.

I do not believe that there is any economic justification for a feeder service airplane of too small a size, say ten-passenger. capacity, the operation of which would undoubtedly require government subsidy. The sound development of air transportation as private enterprise requires as a fundamental that each expansion and extension of existing services be justified on a basis of eventual economic independence.

This economic soundness must of course be based on a reasonably long-term point of view, recognizing the ability of aviation to develop its own market based on the availability of service. In transportation probably more than in any other business, supply frequently precedes and creates demand. The economic justification of these feeder services must also be judged by their contribution to the airline system as a whole and cannot therefore be considered as independent and segregated operations unless by their very nature they naturally become such. But there is serious doubt in my mind as to whether in the present state of the art or with reasonable advances, a ten-passenger airplane even with due allowances for its business development possibilities, and credit for its contribution to system operations, can be an economically sound operating unit. Almost every factor we recognize in weighing operating costs predicates against the efficiency of the small airplane unit, and in a type of service which obviously cannot command premium rates, the small unit defeats itself.

To serve communities with no airports but cow pastures I should prefer to encourage the development for temporary use, pending the establishment of satisfactory airports based on economic justification, of the pick-up type of airplane, the helicopter, or more remotely, the pick-up glider. This type of service could carry mail, possibly light express, infrequent passengers or, heaven forbid, serve purely political ends.

I heartily endorse a local-schedule two-engine airplane, carrying twenty-five to thirty passengers, as the instrument needed to expand airline systems from the inside out. This will extend into more and more communities as fast as it is economically

justified and as provision is made for adequate airports. This airplane, readily convertible from full passenger to full cargo utilization, and designed for normally short distance operation without the requirement for high speed, has all the characteristics necessary to adapt it to a broad field of feeder and local services and special applications throughout the world. With its ability to operate in and out of minimum-type airports, it fills an urgent need as a passenger or cargo or combination airplane as the service requires.

For limited stop service, I would subscribe to a four-engine airplane with the identical power eggs used in my No. 1 general utility airplane. This would be an airplane for limited stop service, carrying forty to fifty passengers on average distances of 500 to 1000 miles in daytime accommodations of comparative luxury at a speed approaching 250 miles per hour. It would find innumerable applications in the American air transport picture. It would be a combination passenger and cargo airplane but with only a portion of its payload capacity, possibly 50 per cent, convertible to cargo use.

My No. 3 airplane would be the largest two-engine airplane which could be built around the maximum size of proven power plants. It would be designed for slightly slower performance, approximately 225 miles per hour, and would be intended for high-passenger density routes of 250 to 300 miles operating range. Its maximum passenger capacity would be 50 to 60. This airplane in its normal passenger form would have only a small percentage of its payload, possibly 30 per cent, convertible to cargo use, but by stripping the interior it would become the flying boxcar for cargo application. A large number of immediate applications can be noted for this type aircraft and a number of others will develop in the not-distant future.

I am hopeful that my long-range airplane, which I shall call No. 4, can use four, or reluctantly more, of the same power eggs used in my No. 3. The necessary size of this airplane will be indicated by its range requirement, and the nature of passenger accommodations there should obviously be day and night deluxe type. This long-range airplane should approach 300 miles per hour in speed performance and should be designed for a maximum operating range of approximately 3000 miles.

Of my four airplanes only two are pressurized, namely No. 2, limited service, and No. 4, long range. Only one has sleeper accommodations, namely, the long-range airplane. All four are combination passenger and cargo airplanes, with two of them adaptable to full cargo use. Only two types of power eggs are suggested for the four airplanes and all other possible elements of standardization should be adopted within the group.

There may well also be need for a cargo airplane of large size, moderate performance for maximum efficiency, and operating range up to 3000 miles. Other possible types of airplanes for special applications would include a smaller semi-commercial airplane for private business and some uneconomical but essential commercial services, and possibly an ultra high-speed long range airplane for selected commercial services at rates prohibitive to the ordinary traveler.

The Author

William Littlewood, Vice President of Engineering, American Airlines, Inc., since 1937, was born Oct. 21, 1898, in New York City. As a student at Cornell University he was awarded the Sibley prize, symbol of the highest scholastic rating in the school, for two years straight running. During his junior year, he was the only engineering student, other than a senior, to be elected to membership in Tau Beta Pi, national engineering honorary society.

Following his graduation from Cornell in 1920, Mr. Littlewood was employed first by a tool manufacturing concern and later with Ingersoll-Rand. In that year he turned from machine engineering to aviation, where he has remained ever since. He joined the engineering department of American Airways, predecessor company of American Airlines, in 1930; was made chief engineer in 1933; and vice president in charge of engineering in 1937. In 1935 he was awarded the Wright Brothers award, presented annually by the Society of Automotive Engineers for the "most outstanding contribution to aviation."

Mr. Littlewood's hobbies are music and photography, when he isn't boating, fishing or playing golf.

The CAB Chief's Program For Disposing of Surplus Transports after the War

L. Welch Pogue Suggests a Set-Up Of Government Machinery to Handle Problem Vital to Future

By L. Welch Pogue
Chairman of the Civil Aeronautics Board

TRANSPORT aircraft make up a vital national asset today. What would we not have given for more of them sooner. As a nation, we woke up late to the fact that this is an air war. In some respects, we woke up still later to the crying need of transport aircraft. There are those who still stoutly maintain that the principal war use for the transport aircraft is to carry air-borne troops and task-force equipment on to the field of battle.

Do the 150,000 miles of air transport routes, which are operated by and under the direction of the armed forces today, carry only parachute troops and ammunition? They carry, just as our merchant marine does, a great variety of what is needed; and constitute a line of fast communications generally which is indispensable to modern war. Apart from this vast military air transport service, our commercial carriers, which drastically curtailed fleets, still operate some 110,000 miles of regular routes gorged with the vital traffic generated by an expanded war economy. From the organizations of these commercial airlines went many of their key men to join the Air Transport Command and the Naval Air Transport Service. In these services they have helped to build up the globe-encircling war air transport routes which I have mentioned.

Because, as a nation, we had not foreseen the vital war need for transport aircraft, we were late in starting to supply that need. Now we are under way. Our peacetime rate of transport aircraft production has increased many fold with a corresponding increase in our production capacity. By the time we have won this war we will have a vast air-transport fleet and vast air-transport production capacity.

However, the possession of this great machinery of war may in peacetime prove as great a problem as its lack proved at the outset of the war. Let us not be caught flat-footed a second time. Unless we make wise plans for the peacetime handling of this wartime fleet and this wartime capacity before the war's end, our progress in air transportation and aircraft development may be arrested for a decade. The government alone can take effective action in this field for the principal reason that it will own the airplanes which create the problem. Indeed, if there is no planning, and the surplus aircraft on hand at the end of this war are simply peddled to the highest bidder, we may be reasonably sure of the following consequences:

I. A vast and costly defense reserve will have been wasted.

"The term 'post-war planning' has a reassuring sound. It brings to mind a picture of broad-scale blueprints of the future. But I venture to assert that any post-war planning which does not provide for aggressive, practical application in the factories of this country just as soon as the war program permits, is a form of self-delusion."

II. The transport aircraft market will be glutted for years to come.

III. The capacity to manufacture and develop transport aircraft will suffer a blow from which it will take years to recover.

This last consequence would be the gravest by far. Of course, the possession of a static reserve fleet of several thousand transport aircraft in condition to fly provides only short-term defense insurance. In this business let us place no dependence upon fixed and unchanging structures. No instrument of war or peace becomes obsolete so fast as an airplane. Aviation preparedness for either war or peace can only be represented by the power and capacity to supply continuously new and improved aircraft. Other nations have forgotten this truth to their everlasting regret.

In the course of these comments, I shall discuss machinery for the handling of the surplus war air transports we will have on hand at the war's close which, it is hoped and believed, will provide the most satisfactory solution to this problem. Also I shall take the liberty of offering a suggestion for peacetime air-transport manufacture which I hope is feasible. But first I should like to place in broad perspective the magnitude of the surplus aircraft problem with which we will probably be faced

Aircraft manufacturing capacity has had meteoric growth in the United States during the last two years. It was a relatively small industry in 1941. In that year manufacturing production of automobile equipment reached the $3,700,000,000 mark, and aircraft manufacturing dollar volume was way down the list. In 1939, the latest year for which comparative statistics are available, it was only forty-fourth in importance among our industries. This year it is a twenty-billion-dollar industry. Next year it promises to be approximately a thirty-billion-dollar industry. If next year's promise is fulfilled, it will be an industry more than eight times as large as the automobile industry was at its all-time peak.

This enlarged industry is now directly employing over one-and-one-half million people. It would probably be impossible to ascertain accurately the additional number of personnel who are contributing indirectly to the production of raw materials required for the manufacture of aircraft and engines, but we can be sure that this number is several million. The older aircraft manufacturing companies, after tremendous expansion, today account for about three-fourths of the persons directly employed. The remainder are those employed by automobile and other companies which are helping out in the aircraft war production program.

When we talk about surplus aircraft, the first questions one asks are, how many aircraft are we talking about, and what kinds of aircraft? In the first place, we can largely eliminate combat aircraft from consideration because most of them will not be available for sale or disposal on the open market. Perhaps it would be possible to convert some bomber types for transport operation. However, this would be a most costly and inefficient undertaking. Further, to increase in this fashion the large surplus of transport aircraft which will surely be on hand at the war's end would be "carrying coals to Newcastle" with a vengeance. There remain the transports and the smaller types of aircraft used for training, courier service and the like.

The public has been told of the production goals of about 90,000 aircraft in 1943 and about 125,000 aircraft in 1944. These figures represent gross tonnage of approximately 425,000 for 1943 and 638,000 for 1944. In view of the tendency to shift to larger aircraft types, tonnage is

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more realistic than number of aircraft. The exact fractions of these totals which are combat aircraft, transports, bombers, and so forth are not publicly known. However, it seems reasonable to estimate that present schedules will call for the production of approximately 15,000 transport aircraft for a current year. As I have indicated, these will include some smaller planes. Of course, not all of the transport aircraft already produced and which will be produced will be on hand at the war's end.

It is, of course, well recognized that the war has provided a fabulous laboratory for the development of aviation in every respect. This focusing of talent in the engineering and development laboratory of modern war means that progress is made not by the year, the month, or the week; but by the day, the hour, and the minute.

A closely related factor which I shall merely mention is the need for an intelligent program of tapering off production at the war's close. In all probability the aircraft manufacturing industry will still be running at high volume, and the surplus of aircraft will inevitably be increased by some unfavorable further production. We shall indeed be derelict, however, if we do not exercise the greatest care and wisdom toward preventing needless swelling then of the formidable surplus which will already be on hand.

As I have previously indicated, the lack of a well-worked-out plan for coping with the surplus-aircraft problem would doubtless result in the government's following the traditional policy of knocking down all surplus equipment to the highest bidder, with consequent saturation of both domestic and foreign markets. In addition to the unhappy consequences such a course would have upon the manufacturer of flying equipment and the economy of the country in general, the result would prove anything but a boon to the United States air transport industry. This industry's health cannot be predicated upon tomorrow's use of today's aircraft. Its future growth like its past growth is intimately linked with the uninterrupted development of new and increasingly more efficient aircraft.

Nor would it be wise to dump these aircraft on the foreign market indiscriminately. Being a nation of outstanding excellence in the field of transport aircraft manufacture, we will be overlooking an important consideration if we do not weigh carefully how our own interests dovetail with those of foreign countries, and make the necessary adjustments. Our own good reputation as the vendors of efficient aircraft might be protected better by some kind of a program which would make such aircraft available to meet temporary requirements pending the time when more efficient aircraft become available for purchase. This would keep the market fresh and vigorous.

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As an alternative to dumping, the surplus aircraft might be scrapped. Of course, some aircraft would need to be preserved to take care of the immediate and pressing needs of the United States and foreign carriers, as I have already suggested. Scrapping would have the advantage of cleaning up the situation so that the available market would be preserved. It would have the obvious disadvantage of liquidating a very large and costly fleet of transport aircraft which might serve for a time as a valuable war reserve or as an instrument in the maintenance of peace for a number of postwar years.

Of course, a certain number of surplus aircraft will have to be scrapped in any event. The war's close will find many of our air transports located at remote fields throughout the world. Overnight the standards by which aircraft are valued will undergo radical revision. No longer will many of these aircraft be in condition to meet the peacetime test of airworthiness. The cost of reconditioning and possible rebuilding plus the flight or shipment costs to a home base will have to be carefully measured against the plane's value at the home base on a market already surfeited with similar equipment. No doubt, a care-

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ful, on-location survey of all war transport aircraft, in the light of various considerations of cost and value, should be undertaken as a first step in any postwar surplus air transport arrangement or plan, in order to determine what equipment is not worth reconditioning or salvaging.

However, in addition to the equipment which is written off and destroyed and the equipment immediately needed to relieve the acute shortage of transport aircraft in commercial service and to expand commercial air transport operations, there will undoubtedly exist an air transport surplus sufficient to take care of military peacetime needs and replace many fold the prewar fleets of all of the world's air carriers.

It seems clear that there is no simple solution to the problems which will be presented by the government's possession at the war's end of a huge fleet of surplus transport aircraft. It might be possible efficiently to integrate a small fraction of this fleet with the peacetime air transport system and another small fraction might be sold, leased, chartered or in other ways farmed out with all possible regard to preserving the manufacturer's new products. But the balance would be huge and it could not be simply dumped or scrapped.

The government might authorize the return to each of the manufacturing concerns which has produced transport aircraft the surplus supply of its own type to permit the factory to convert the aircraft to commercial usage and resell them under appropriate rules and regulations calculated to prevent the development of evils in the procedure not now foreseeable. Obviously, this would be a vast and complex undertaking and the disadvantages that would surely follow in its train could well be greater than the disadvantages it was designed to avoid.

The government could enter upon a policy of preserving the surplus aircraft in a separate reservoir or pool for use in any future emergency or contingency which might arise. In this connection, it might be well to note that although commercially, where economy of operation is a controlling consideration, it is important to have the most modern and efficient types of aircraft possible, this factor is not the controlling one where a period of national emergency is involved and operating cost is relatively unimportant. The establishment of such a reservoir would involve, of course, the building and maintenance of large storage facilities.

But far more realistic to my mind than any of the possibilities which I have mentioned or than any of the possibilities which could be suggested today is the proposal that adequate machinery be set up now to handle the surplus aircraft problem in whatever way may best accord with the national interest and national policies at the time when these matters must be decided.

Bearing upon all these problems is the fact that unless considerable work is done toward the development of purely commercial type aircraft prior to the close of hostilities, we can anticipate a period of from two to five years before new types are available for the market. In the meantime, the transport aircraft needs of our civil air lines, of reconstruction and relief operations abroad, and of foreign countries, will have to be met from war produced aircraft even if those aircraft are not as efficient as the postwar aircraft industry will know how to build.

It may be thought that I have placed too little emphasis upon the construction of smaller types of aircraft and upon the problems which will confront the manufacturer of parts and accessories. The problems of these latter businesses are no less acute in their field than are those of the transport aircraft producer; but in a

"Perhaps it would be possible to convert some bomber types for transport operation. However, this would be a most costly and inefficient undertaking. Further, to increase in this fashion the large surplus of aircraft at war's end would be 'carrying coals to Newcastle' with a vengeance."

brief review it is necessary to concentrate on one branch of the field. All branches of the flying equipment industry should receive the same careful attention in the determination of national policy.

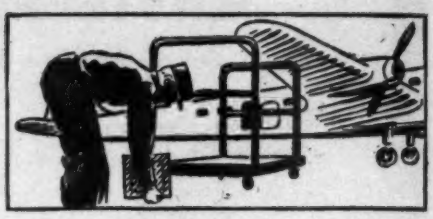
We turn now to the exceedingly important question of how we can set up machinery which will place the government in a position to do what is necessary when the time comes. An aviation-conscious Congress, recognizing the problem, has before it to provide such machinery House Bill 2959, introduced by the Honorable Clarence F. Lea of California, Chairman of the House Interstate and Foreign Commerce Committee.

As presently constituted, this bill proposes to place in the Civil Aeronautics Board the responsibility for handling the surplus aircraft problem and grants broad powers to the Board in the disposition of surplus aircraft owned by the United States. In the process of disposing of all surplus equipment, the Board will be required to weigh the effect of its policies on the economic soundness, efficiency and safety of the existing domestic and international air transport system of the country. It is also charged with the burden of pursuing a course that will preserve the economic soundness of the aircraft manufacturing industry.

Provision is made for the licensing of the import and export of aircraft and also to meet the demand for such equipment by any foreign country or its nationals.

Under the proposed measure, all Federal departments having ownership, possession or control of surplus aircraft which were manufactured or in process of manufacture on or prior to the date one year following the cessation of hostilities are authorized to transfer such ownership, possession, or control of such aircraft to the Board. From that point on it becomes the Board's responsibility to dispose of such surplus aircraft as it sees fit but in keeping with the policies set forth in the bill.

The Board is given wide latitude in the manner in which it chooses to dispose of all surplus aircraft. It can either sell, lease, charter, exchange or otherwise dispose of aircraft and parts owned by it, with or without advertising and under such terms as it may determine. Further, it is not limited in the financial arrangements it may desire to make in accepting payment for such aircraft.



Obviously, the proposed legislation contemplates the conduct of individual business transactions by the government. From the nature of things, this is an inescapable consequence of its ownership of surplus aircraft in such quantity and under such circumstances that their immediate disposal at the war's end is out of the question. It should be kept in mind that we are here dealing with public assets costing, perhaps, several billions of dollars.

The objectives of the bill are worthy, and I believe that the Civil Aeronautics Board, charged already with the duty and responsibility of fostering the sound development of an air-transportation system, should have a large part to play in the disposition of the surplus aircraft. It is believed, however, that other departments of the government have vital concern in this disposition, and I am authorized to say that it is the Board's view that the instrument for carrying out the provisions and intent of this bill should be a corporation, the Board of Directors of which should include representatives of the War Department, the Navy Department, the State Department, the Treasury Department, the Commerce Department, and the Civil Aeronautics Board.

This, then, is the machinery through which I believe the most satisfactory solution can be attained. If it should seem to you that I have raised large problems and indicated vast and complicated vistas stretched out before us without recommending any concrete solution, it is because no such solution is possible today. The only great step which can be taken now is the establishment of the machinery for handling these problems to which I have referred, and to me the taking of that step promptly is of the greatest importance.

The magnitude and complexity of the

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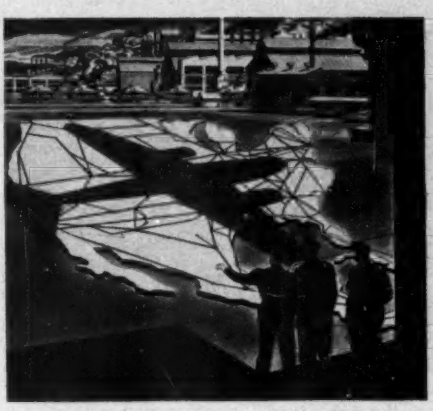

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"Because, as a nation, we had not foreseen the vital war need for transport aircraft, we were late in starting to supply that need. However, the possession of this great machinery of war may in peacetime prove as great a problem as its lack proved at the outset of the war."

problems with which any agency set up to administer the surplus aircraft will be confronted must be clearly recognized. Even with the Board powers and the wide latitude of action contemplated in this pending legislation this agency, on occasion, will inevitably be faced with the necessity of choosing between certain alternatives, none of which are wholly satisfactory. Only wishful thinking could lead to a conclusion that a reserve of several thousands of transport aircraft could be so administered that under any and every conceivable circumstance nothing whatever would be subtracted from the potential markets of the manufacturers. Their mere existence in any capacity offers a dangerous degree of competition.

The pending legislation contemplates that these surplus aircraft will be maintained, administered and liquidated in a manner to preserve the economic soundness of the nation's air transport and aircraft manufacturing industries. But neither the intent of Congress nor of the government agency which will have responsibility for the reserve could completely remove its threat to air transport markets so long as the aircraft which comprise that reserve are on an approximate par of efficiency with aircraft in production by the manufacturers.

If the end of this war finds the aircraft manufacturers limited to the capacity to grind out exact replicas of those aircraft of which there are already a large surplus on hand, and finds them unable to place upon the market, soon after the war, aircraft that are appreciably more efficient for commercial service than those already on hand, then I say that as a nation we will have missed a great opportunity. The war may, of course, force us to miss it; but let us hope not.

The term "post-war planning" has a pleasantly reassuring sound. It brings to mind a picture of broad-scale blueprints of the future and other comprehensive activities. But I venture to assert that any post-war planning which does not provide for aggressive, practical application in the factories of this country just as soon as the war program permits, is a form of self-delusion.

To find time and find a way to launch and develop those activities which at the war's end will place our aircraft factories in a degree of readiness to produce what they *should* then be capable of producing is a matter of distinct national concern. To find time to develop a new and better models of transport aircraft ranging from small but efficient types suitable for local services to large trans-oceanic air liners is the problem. I have faith that, if this problem can be worked out in harmony with the requirements of war production, our American manufacturers and airline operators need have little concern for the competition from postwar surpluses of war transport aircraft.

The foregoing article is based on an address made by J. Welch Pogue at the University of Southern California before the Aviation Forum, composed of twenty aeronautical associations.

Goodyear Tire & Rubber Co. Names Harry A. Bruno To Head Public Relations

The Goodyear Tire & Rubber Company has retained the firm of H. A. Bruno & Associates as public relations counsel, it was announced in Akron recently by L. E. Judd, Goodyear Director of Public Relations.

L. A. Nixon will be account executive for the Bruno firm, in serving in an over-all capacity which will give especial attention to the aeronautical activities of Goodyear, whose big aircraft subsidiary produces naval patrol blimps, the FG-1 Goodyear Corsair, wings, flight decks, tail surfaces and other sub-assemblies, including wheels and brakes, for a number of plane manufacturers.

Mr. Harry A. Bruno is the writer of "Wings Over America."

Heroes' Alma Mater

Our airmen have proved themselves masters of anything that flies.

When you hear of their exploits you wonder how such skill, such devastating dexterity could be acquired in a few brief months. Surely, these men must have been "born to the blue."

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From behind soda fountain and plow, office desk and ivied walls, after a short intensive training in the PT-19, the most daring and expert flyers the world has known have emerged. After six hours training in a PT-19 it is not unusual to solo Army students who have never flown before.

As a constant check on the performance of PT-19's, on the American mainland and abroad, the reports of a corps of specialists written in the field, enable our engineers and designers back home to keep that "touch of tomorrow in the planes of today."

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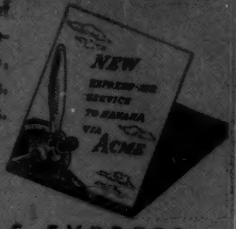

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AIR CARGO PERSONALITIES

Another in AIR TRANSPORTATION's Series

Alexander Nesbitt Kemp

President, American Airlines

SKIPPER of the Flagship fleet for American Airlines Inc. is a man whose first love, before he became connected with aviation, was the sea. A native Californian, Alexander Nesbitt Kemp sailed Pacific waters for years in his schooner Amorilla and on more than one occasion proved his nautical skill by bringing the ship safely to port through storms. He has won Pacific Coast championships.

Realizing the need for a steady hand at the helm in such times as these, American Airlines asked Skipper Kemp to guide the company as its president, when the Army called President C. R. Smith into active service as Chief of Staff of the Air Transport Command in 1942. Kemp at that time was a member of the board of directors of American Airlines and president of Pacific Mutual Life Insurance Company.

Born on June 22, 1879, Kemp's business experience began in London in 1900 with the Hong Kong & Shanghai Banking Corp. In 1903 he was transferred to their New York branch and two years later returned to California. There he remained until he took over the direction of American Airlines last year.

Hydroelectric power was in its infancy in 1905. Harnessing the powerful streams of the western mountains was an exciting task, and to Kemp goes the credit for developing the construction of the West's first high-tension transmission lines. In 1917, three of the western power companies merged into the Southern California Edison Company, and Kemp was successively named comptroller and vice president in charge of finance of the new company.

In 1923 he turned exclusively to banking when he was elected executive vice president of the California Bank, a position which he retained until 1928. Then he retired to private life, his schooner and his hobbies of collecting first editions and marine paintings. But his reputation as a banker did not die so easily, and in 1935 he was recalled to business to become president of Pacific Mutual. He still retains his directorship on the board of Southern California Edison and the California Bank, and remains chairman of the board of Pacific Mutual. He is also a director of Standard Oil of California.

Under his presidency, American Airlines has continued the aggressive policy which has characterized it since its incorporation under its present name in 1934. The total of air express and air mail carried in the first five months of 1943 broke all records, not only for the company but for all lines. American carried, during those months, 7,491,356 lb. of express and 9,353,934 lb. of mail, compared to 3,619,515 lb. of express and 5,052,412 lb. of mail during the same period of last year. This record-breaking achievement has been accomplished in spite of the handicap of operating with approximately 50 per ceat of its pre-war equipment.

To Kemp's long experience in banking may also be attributed the fact that the 1942 annual report of the company was among those given the highest merit award by Financial World.

His activities have not always been confined to business, though he finds time for little else these days. In Los Angeles he has headed Red Cross drives, served as a director of the Civic Light Opera Association, the All-Year Club of Southern California and the Los Angeles Chamber of Commerce. He does not sail these days.

"The Skipper" is a friendly person, with the simple, direct manner and ruddy complexion born of the sea. Because he has none of the stuffiness usually associated with bank presidents, he has fitted into the youngest business in the world as naturally as if he had been brought up in a Curtiss "Jenny." In fact, he finds the same salty atmosphere in aviation that endeared the ocean to him. He likes to talk to people and to meet them in their own bailiwicks, for he is not the type who expects everyone to jump when he presses a button.

Kemp is married and has two children, one a married daughter who lives in Beverly Hills, Calif., and the other a son, who is a lieutenant in the Army, stationed in California.

Is the Transport Plane Only as Good as The Truck that Serves It?

By GEORGE H. SCRAGG
In Charge of Aviation Activities, The White Motor Company

THE dreamer's picture of the post-war period envisions a sky full of giant transport planes winging their way between every port and hamlet, fulfilling the country's cargo transfer needs quite independently and irrespective of all other transportation media. That picture overrides all problems with the greatest of ease and it leaves the goods piled high on airport platforms with the final disposition blithely ignored.

Our dreamer, in short, sees only the tremendous advantage of time saved in flight. He forgets that neither shipper nor receiver is located at the airport, and that the customer eventually will dictate the success or failure of air operations on the basis of service.

What the customer wants is service to his doorstep, and if the time saved in flight is more than offset by the time lost in getting the goods from airport to eventual destination, he will choose other media whose charges for the same service are less. Time is the one factor which should never be lost sight of in the planning of air cargo operations, and it should be carried through all stages from shipper to receiver.

We are thinking now of the immediate postwar period before the time when it is practical for helicopters to elevate sizeable loads to the rooftops and before planes with folding wings can drop out of the skies and roll down the streets to the consignee's door. These things may come, but they lie in the future. Air cargo won't wait. Nor should it. The problem of handling goods between airport and customer can be worked out on a practical basis with the aid of ground transportation equipment—namely, trucks.

In the comprehensive study and analysis which should precede air cargo operations, the value of the plane as a common carrier should be considered from all angles. Only through full utilization of the equipment can its potential service and consequent profits be realized. Time and carrying capacity combine to produce results which will far offset the increased per hour operating costs of the equipment. A crude example in another field—ground transportation—may serve to show the possibilities.

A few years ago four-ton, Diesel-powered trucks were operating in Spain, and because of their lack of power they were forced to negotiate the mountains at a speed of less than ten miles an hour. American trucks were then tried despite the opposition of skeptics who felt that the heavy investment charges and the use of gasoline at high rates per gallon in a large engine would make overall costs prohibitive. These vehicles were of the same rated capacity as the Spanish jobs but because of their greater power and strength they could carry loads of six tons instead of four, and they could maintain higher average speeds over the mountains and along the entire route.

The skeptics, with their eyes focussed only on the operating costs, felt that the American vehicles could not compete with the lower-powered diesel trucks. A week's operation brought the following comparative results:

The American truck with its increased power, which permitted faster schedules, was able to deliver six tons a day, six days a week, making a total of thirty-six tons. The smaller Diesel truck delivered but four tons in twelve hours, returning to its base for another load the following

George H. Scragg

day, for the Spanish did not consider night operation possible. Thus it carried four tons every other day, or twelve tons in a six-day week. Although the fuel costs per mile were greater for the American truck, the cost of transportation per ton was far less, primarily due to the time element. In addition to the savings in operating costs, there were other factors such as the cost of food and lodging which were necessitated by the driver staying away overnight. From the standpoint of weekly accomplishments, there was an advantage of three to one for the American truck.

We find people today who maintain that the airplane will not be a competitive factor because of its greater cost per ton-mile. They, too, fail to take the time element into consideration. Aside from time savings, it must be remembered that in many cases there will be a saving in crating weights and the lighter containers will mean less pounds on which to pay. Also credited to the airplane operation will be the interest saved on discounted bills, recognizing that faster delivery of goods will mean prompter payments.

One thing is certain. That is, the value of cargo planes will be greatest over the long routes where considerable time can be saved. The time advantage will decrease as the distance is reduced because the time spent in getting loads to and from the planes will represent a greater percentage of the total. This emphasizes the need, in any plan of air cargo operation, of full consideration of the ground phase. The handling must be thorough and complete on a door-to-door basis.

Manufacturers in many product fields will strive to ship from their plant to the consignee overnight, and thus the greatest competition for the airplane will arise in an area where other transportation media can make the deliveries overnight. The value of the plane will increase in proportion to the increase of the radius beyond the overnight sphere of other operators.

The ground transportation phase of air cargo should take into account such things as loading and unloading methods. Will the transfer of goods be made from plane to platform to truck or directly from plane to truck? What type of equipment will be used for most convenient handling on a time-saving basis? Will the trucks be owned by the air lines themselves; will they be operated under cooperative ownership of several lines, or by airport authorities; or will the trucks of established truck lines be utilized? These questions, in turn, bring up the question as to whether or not the government is going to permit air lines to operate truck lines. If so, to what extent? If the air lines prevail upon the

The Writer

GEORGE H. SCRAGG is well qualified to discuss the subject of post-war air cargo on the strength of a background in aviation as well as ground transportation, and an up-to-date contact with each. Mr. Scragg had a hand in the designing, testing, and flying of planes long before the First World War and he took an active part in that great conflict as Chief Technical Officer of the Night Bombardment Section, A.E.F. In this capacity he supervised operations of early cargo-size planes including the two and four-engined Handley Pages and the three-engined Capronis. Directly after the war he laid out a plan for air cargo service between Chicago and New York —a plan which created considerable interest.

Mr. Scragg is chairman of the aviation division of the Cleveland Engineering Society and is a member of the Society of Automotive Engineers, the Early Birds, and the Quiet Birdmen. He is in charge of aviation activities for the White Motor Company and occupies the position of Director of Advertising & Sales Promotion for that organization.

Elevated platform truck for plane cargoes.

I.C.C. or other authorities for permission to operate trucks, they must consider to what extent they are inviting competition in their own field. Also, apart from what the government will or will not permit, there is always the question of where sound economy lies.

Certainly at this stage, and looking ahead for a few years, it would seem wisest to utilize the facilities of existing truck lines for the ground transportation phase of air cargo. This is recommended for several reasons. For one thing it must be remembered that States have established restrictions as to loads, lengths, widths and other factors to such a degree that even the trucks in adjoining States can't come in. The I.C.C. might not wish to permit the operation of trucks in competition with present truck operators to whom they have issued inter-State rights, on the ground of duplication. In many cases air cargo will find it necessary to cross State boundaries on the ground leg of the service, such as hauling from Newark into New York or New York into Connecticut.

It would seem that another good reason for using existing truck lines would lie in the fact that, particularly at the beginning, air cargo will find it impossible to estimate the volume of business at many points. It is quite conceivable that relatively small cargoes of from ten to fifteen tons might be delivered at a given airport for distribution to a large number of customers spread over a sizeable area. In the breakdown of cargo, the consignments to individual receivers might range all the way from fifty or 100 pounds or less up to five tons or more. Under such conditions it is quite impossible for the air lines to have ground equipment standing by to take care of the varying loads and points of destination. It would be decidedly uneconomical to send out individual trucks with small loads even if a sufficiently large fleet was maintained. Yet

to hold cargo until full truckloads could be dispatched to given destinations would defeat the purpose of air service, which is the saving of time.

Accordingly, it would seem wise to use the vehicles now operated by the truck concerns and the draymen whose schedules already call for frequent service on many routes. Because such trucks carry other cargo, they can afford to pick up small air consignments and quote rates below the cost which would be borne by an airline truck fleet.

Since airports are usually located at a distance from the center of the city area, it would be most logical to receive and dispatch air cargo from a central city depot. This would not only be most convenient for the prospective shippers and receivers but it would permit the use of the most adaptable and economical equipment. Whereas it would be costly for city delivery-type trucks to fan out from the airport and carry limited loads over comparatively long distances, tractor and trailer units could shuttle back and forth and haul the cargo in quantity from the airport to the central depot, and a fleet of city-type delivery vehicles could handle the distribution conveniently from there. The central depot could well be maintained on a cooperative basis. This would not only enable the various air lines to share the cost, but it would prove decidedly acceptable to the patrons of air cargo who could contact the one depot no matter in what direction or over what air lines the goods were to go.

The presence of a central depot in a convenient location would serve to promote the use of air lines. Companies with rush consignments would be entirely willing to dispatch their own trucks to the central depot, whereas they would think twice before sending them clear out to the airport.

Air cargo has many problems ahead but none which cannot be solved satisfactorily if proper thought and attention is given to the details. Our war experience with huge bombers and cargo planes has clearly demonstrated that planes of almost unlimited size can be built. However, before they can be put in operation it will be necessary to provide adequate airport port landing areas but ample emergency fields along the projected routes. Aside from this, there are the problems connected with plane maintenance, personnel, and cargo handling. All this is going to take time, and the dreamer's picture of overnight air cargo service on a grand scale is likely to be considerably overdrawn.

Above everything else, prospective air cargo operators must keep their eye on the time element as a golfer keeps his eye on the ball. Any departure from the one big thing that air cargo has to offer will be suicide. It must be remembered that trains will still ride the rails with a clear-cut advantage in bulk cargo; that established truck lines will still ply the highways with increasing average speed and with the advantage of only a single handling between the door of the shipper and that of the receiver. Their lower per-mile rate must be offset by the time advantages which air lines are able to offer. Furthermore, if air cargo is to get a good share of the business, the premium rate which air lines must charge to offset the costs should be lowered as far as possible by efficiency measures.

American transportation service has had a gradual speed-up over many years. It is destined to see a much greater speed-up in the post-war period, primarily due to the important entry of air cargo but also due in part to advances in the operating equipment and methods of other carriers. Air line patronage will most certainly come from customers whose goods are most adaptable and where time is held at a premium. Speed must justify that higher rate, particularly in the initial stages when the rates will undoubtedly be much higher than the rates of rail or highway carriers. As the cost of air line operation is gradually whittled down, the differential between these rates will be less.

While there is no denying the competitive factor, it is likewise true that air cargo will boost business generally to the benefit of other carriers. Truck operators in particular will get a certain amount of business because of the ground service which they are capable of rendering as a necessary adjunct to air transportation.

Certainly it would be folly for rail, highway, and water carriers to make any attempt at strangling the efforts of the air lines, because air services form a natural link in the evolution of American business. The future is bound to see a noticeable advance in transportation methods both in

A semi-trailer brings freight to the airport.

the domestic and export fields. There is no stemming the tide. The tremendous volume of business which is forecast for the postwar period will make use of all forms of transportation, each according to the type of service it is most capable of rendering. The choice as between media will be determined by practical economic factors.

With 55 cents of the consumers dollar now going for distribution, the need for cutting distribution costs is apparent. Consequently, it would seem that the transportation problem should be considered as a mass problem, with every type of carrier employed in the solution according to the contribution it can make. With the coordination of all agencies, the cost of distribution can be cut considerably, thus stimulating a greater volume of business which, in turn, will reflect to the benefit of the carriers. There's a big job ahead and a consequent need for cooperation.

Electronic Robot Will Guide Cargoes Aloft After War

After the war air freight will be speeded on its way by the seemingly magical electronic robot, which has brought numbers of bullet-shattered American bombing planes safely back to their bases during the war. A closely guarded secret for a long period of time, news of the robot now explains why some remarkable home trips have been made by great planes which apparently had suffered enough hits to cause them to spin and crash far over enemy territory.

The device which has brought American planes back despite flak and cannon fire is an electronically controlled automatic pilot used to provide a stable platform for high altitude bombing, a device located far in the tail of planes.

The story of the electronic steering machine was disclosed by the Army Air Force and the Minneapolis Honeywell Regulator Company, which co-operated on the development after Materiel Command foresaw its need.

Air Force officers said that American bombers equipped with the Minneapolis-Honeywell auto-pilot participated in daylight raids over Europe and Asia, and it was emphasized that the device had been one of the factors responsible for those raids' devastation and low ratio of bomber losses.

The electronic auto-pilot was accepted by the Army Air Force in October, 1941, and for months has been standard equipment on America's heavy bombers and certain types of bomber-trainer planes.

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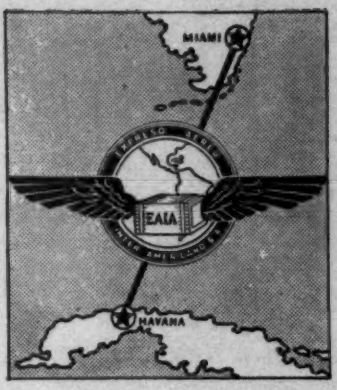

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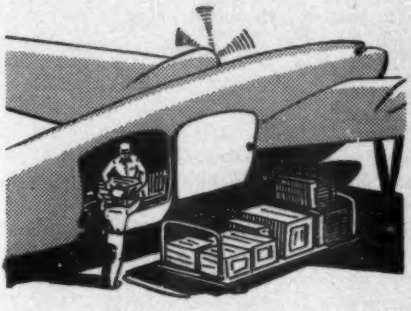

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IT'S AN *Air* WORLD

By L. A. GOLDSMITH, *Economic Analyst,* AIR TRANSPORTATION

THE world is really beginning to encroach on your doorstep. But it takes the advertisements of the aircraft manufacturers and the air lines to make us realize it more vividly. The news stories of course drive home the facts of this already arrived air age every day. But for my part it remains for aviation advertising to galvanize me into actually *feeling* the overpowering reality.

The World Is Within Hours of Your Doorstep

For instance that very phrase "the world is within hours of your doorstep." What could be more simple and concise than that eight-word advertising message?—especially when it is most definitely the simple unadorned truth. This advertiser embellishes the first statement by emphasizing the belief that their giant airliners "will make neighbors of all nations . . . and will give seven-league boots to the peoples of all nations."

Another advertiser hammers home the sense of reality that the world is fast becoming one big neighborhood when they show a ferry pilot headed for a "destination unknown." They add this trail-blazing annotation—"Yesterday he was in Miami . . . two days ago in Dakar . . . the day before in London—Tomorrow? The men in the Ferry Command never know. On a few hours notice they pack their belongings in a little bag, and take off for the ends of the earth. Chungking—Moscow—the pinhead islands of the Pacific."

And if that does not conjure up a picture for the imagination I do not know what will. But the air transport pilots say "it is all in the day's work." They just draw a line on the map and fly there—at least that is what they say!

WITHIN the past three months Panagra has three important anniversaries to its credit. In August of this year it completed its first year of All Cargo commercial service. In September it had rolled up fifteen years of South American Air Service—and in October, Columbus Day of this year coincides with its fourteenth anniversary of delivering the first airmail from the United States to Buenos Aires.

Gold Mine In Peru Abandoned for Many Years

But long before its heads could look back on this impressive record of accomplishment, they were handling unusual freight commitments—such as the case of the abandoned gold mine in Peru. This mine was brought back into circulation in 1934, after decades of disuse.

There was the mine—located at Huanacopampa, Peru, situated at an altitude of 12,500 ft. in the majestic mountain ranges of the Andes. This gold mine was at a distance of three weeks travel by muleback from the nearest railroad station at Cuzco. It was inaccessible, and therefore the gold was useless to the outside world, unless and until modern mining machinery could be installed. But how to do it? To haul the heavy and cumbersome machinery by muleback would have taken forever and a day. The airplane was obviously the answer. At least so thought Pan American-Grace's top men, and they translated their thought into action. It took some doing and handling, but they evolved the technique. As a result they transported all the necessary material in 421 round trips. Each trip took from 35 to 40 minutes—in contrast to the three weeks required by muleback!

But that's also all in the day's work. They think nothing of it at Panagra and go from every completed problem to tackle new ones. Each experience helps to develop training techniques which make for smooth and deft handling of today's and tomorrow's regular commercial air cargo schedules.

On their southbound trips Panagra's air cargoes call for much more than machinery, mining or otherwise. They transport medicines and medical equipment, fashionable furs, and modern films, drugs and printed matter and plenty of wearing apparel of the high fashion variety.

Going northward, the air shipments include many valuable raw materials vitally essential

for our war needs as well as civilian industry. When transported by air these shipments help materially by their time saving effect to offset losses of production. This also speeds up to the fullest use the factory equipment engaged in turning out munitions and materials of war.

THAT story of the long neglected gold mine started me thinking about air cargo potentialities in general. Just from the viewpoint of broad sweeping highlights, this seems to me to have possibilities along these lines: MORE PROFITS for the manufacturer—more profits for the dealer—constantly renewed stocks fresh and attractive for the ultimate consumer—all possible with certain products. What could be sweeter to the ears of the business executive? Can this be possible? Can this be achieved through air cargo?

Air Cargo's Basic Advantage—Increases Profits Through Accelerated Speed of Turnover

In certain places, yes—with certain products—yes. But not everywhere and not with every type of product. Specifically in Latin America and other overseas markets, greater profits are available for all concerned: the shipper in the United States as well as the retail merchant and the general importer in foreign markets. All this is possible by the accelerated speed of turnover obtainable through air transportation of commercial cargoes.

These greater profits can be definitely obtained by the importer or retail merchant abroad: First, by *more rapid turnover of capital*—in certain places this will probably be from six to eight times a year as compared with two or three times a year in former pre-aviation times. Secondly, in addition to the profit on each turnover, there is the factor of lowered inventories, which in turn reduces bank carrying charges. This latter is a very costly item for business in Latin American countries. Interest charges are generally much higher than in the United States. From the angle of the United States manufacturer or producer there is also the question of lowered inventories; consequently less tying up of capital in heavy stocks of merchandise awaiting shipment. His interest charges are also less, if his capital investment is reduced. The turnover on *his* capital is also more rapid due to more frequent deliveries. And if the manufacturer so desires he could choose to continue to use the same amount of capital in his business, and utilize it more effectively by securing additional markets and greater distribution of his product.

So, whichever way you look at it; whichever way you slice your business pie, the yield will be greater, if, when, and as your product is practical and profitable for air transportation.

Now what type of merchandise would be adaptable for practical purposes to air cargo? Possibly men's shirts and hats and shoes of the higher priced qualities. Costly cosmetics—drugs, medicines—furs—and motion picture films. Foods—perishable, frozen and dehydrated as well as some varieties of carton packaged foods. Then there are diamonds both of the industrial and precious gems variety as well as other types of precious stones—and do not overlook high-priced costume jewelry. Women's wearing apparel, especially those of high fashion appeal and of a seasonal nature—also hosiery and lingerie. Surprising as it may seem, hardware is considered by one of its leading manufacturers as a very practical potential possibility for air cargo. And of course there is always the category of emergency shipments, and the constant need for spare parts required for industrial and other types of machinery which might stand idle for a long time while awaiting replacements.

Recently the Foreign Credit Interchange Bureau of New York conducted a most interesting survey amongst its members on the subject of "future shipments by air transportation." Their answers came in considerable detail, but the highlights can be summed up as follows: 66% said their products did not lend themselves for air transportation, while 34% said they did. 90% anticipated no change in the handling of their merchandising methods or markets. 87% expected no modification of their sales conditions, while 87% foresaw no variation in credit terms. The small minority did believe changes would occur.

In commenting about this report one audacious individual ventured to predict that five years from the time the war ends, the majority of those replying might find their faces rather red. This particular person thinks that there will be incredibly more changes in every phase of business, both here and abroad, due to the speeding up of merchandise deliveries through air

transportation. One of the members who replied more fully than the rest concurs with the latter thought. What he says is worth noting:

"This business of future transportation of our goods is bigger than we think and will bring to some foreign traders (more than they suspect now) all the changes listed in your survey and many others. . . . Here is a point that most of us overlook. We are not going to have the last word on this air transportation matter. Do not forget that we will have to be guided first of all by what our competitors and their governments do and we will be having stiff competition from all over the world once this war is over. What is more important, the final decision will rest with our foreign buyers, who after all pay the bills."

An Air Minded World Takes Today In Its Stride Plans Tomorrow With Pride

RIGHT here and now that wise and canny "Elder Statesman," Mr. Bernard Baruch comes out with his forthright viewpoint—"That aircraft production is our most crucial problem." Speaking in mid-September from his "office," that famous park bench right across from the White House, Mr. Baruch urged the need for putting forth every effort to turn out every bomber *now*. He vigorously stressed that "the limiting factor in our air offensive over Germany is the number of airplanes we shall have in combat *in the next few months*." And that, says Mr. Baruch, "depends on what we do here on the home front, and especially what is done in our airplane plants in the next few weeks—nothing could be more important."

INSTITUTES OF AERONAUTICS are among those present to be scheduled as postwar projects in an educational building program of approximately $100,000,000, approved by the New York State Board of Regents. In this overall figure of $100,000,000, the amount of $14,000,000 was earmarked for new buildings to house State Institutes of Aeronautics, Business and Applied Arts.

WILL TIME STAND STILL ON THE CLOCK even while you may be moving through the air at the speed of 720 miles an hour? That is to say, if, as someone has figured it out, transatlantic airplanes reach the speed as indicated of 720 miles an hour, the flying time between the United States and Great Britain would then be about five hours. If you allow for five hours difference between Eastern Standard and British time, it would mean that a passenger could leave London at noon and arrive that same day in New York and still find that it was noon, even after flying five hours through—presumably—the stratosphere!

Cargo Plane with Ramp And Winches Developed By Martin Company

The aviation industry, already adjusted to flying freight cars and vast cargo carriers, is now turning its eyes on a radical new type of cargo plane announced by the Glenn Martin Company of Baltimore. A radical type of plane, it can be loaded and unloaded, so it is said, as easily as a moving van, and it carries its own ramp and cargo winches.

A patent for the new type aircraft, whose features would eliminate many of the difficulties now being encountered in handling aerial freight, has been granted to William D. van Zelm, of the Martin engineering department.

A loading door under the boom-extended tail surfaces, with a collapsible ramp which can run either to the ground or the back platform of a truck, built-in winches for dragging heavy freight aboard and adjustable jacks which prevent any strain on the plane itself are part of the equipment.

The two versions of the Van Zelm cargo airplane already developed by Martin engineers are low-wing monoplanes with two and four engines respectively.

The two-engine type has a gross weight of 60,000 pounds, larger than the PBM-3 Mariner, while the four-engined type has a gross weight of 86,000 pounds and a useful load of 36,870 pounds, of which 27,000 pounds—13½ tons—would be cargo.

A New York department store recently outfitted an entire wedding party for a furlough wedding on the West Coast in less than twenty-four hours by air express. The order was telegraphed at noon, shipped by air that evening, and delivered to the bride before noon the next day.

Dick Rossi (left), formerly an ace pilot with General Chennault's Flying Tigers, is now a captain on the transports of China National Avaition Corp. He is shown with Older, another former Flying Tiger.

Ingots by Air for the Foundries of China

Former AVG "Flying Tiger" Tells of Piloting Heavy Cargoes Over Himalayas

THE hair-raising adventures of the AVG fliers, the Flying Tiger pilots who flew their Curtiss P-40 *Warhawks* to victory over the best sky fighters the Japs could put up against them, were "just a vacation" compared with flying transport planes along the aerial Burma Road connecting China with India. Take it from Dick Rossi, who knows.

Rossi is a 29-year-old veteran of sky fighting against the Japanese airmen. For a year, while most Americans were at peace, he piloted his shark-nosed pursuit ship here and there against *Zeros* and twin-engined Jap bombers over China. In the course of his duties he sent eight of the enemy plummeting earthward, perhaps four others, thus becoming an ace.

It was adventure that had led him to volunteer for service with the little band of eager young Americans Colonel Claire Chennault was recruiting in 1941 to fight against the Japs.

When it came time for the AVG to disband, curly-headed, Mustached Rossi and

others of his companions wanted so much to keep on fighting that they joined up with China National Aviation Corp. (the fabulous airline run jointly by Pan American Airways and the Chinese Government), went back to flying school again to learn how to pilot the big transports, then began flying CNAC planes on the aerial lifelines that have helped immeasurably to keep alive China's resistance to the Japanese invaders.

For months Rossi and his companions, now regular Captains of the line, guided their DC-3's on regular schedules into and out of Calcutta, their cabins loaded with important personages, badly needed cargoes, and equally important mails.

Then, Rossi lifted his big transport from the Chungking airfield at dawn with a full load of passengers and mail bound for an intermediate pick-up point where a rush cargo of metal ingots was to be loaded aboard and flown on the first leg of their long journey to some waiting war plant.

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FROM Chungking to the pick-up point was an uneventful trip, skimming just over the top of a fleecy ocean of clouds and in and out of mountain passes, bucking a stiff headwind that averaged 80 m.p.h.—not much compared to some of the "blows" Rossi had flown through at the controls of CNAC ships.

Twenty minutes after the plane had roared off from the pick-up point, heavy, black cloud curtains blocked their way. Her two big motors thundering reassuringly, the transport roared into the tangled, black mass of vapor.

It was like turning out the lights in a windowless room. Inside the pilots' cabin the instrument panel glowed faintly, outlining the pilots' faces in the gloom. Outside it was freezing.

The ship was at 14,000 feet by now, tunneling through the inky darkness. Then the thin crusting of rime ice on the propellers and windshield thickened perceptibly.

The great propellers whirred stoutly, every now and then hurling great chunks of ice against the cabin sides, adding to the wail of the storm overtones of loud explosions.

Rossi was nursing the ship now, coaxing it up and up, hoping to break through the overcast and find clear weather. The rubber de-icer boots on the leading edges of the wings and tail alternately heaved and sighed, breaking off ice formations before they could interfere with the ship's flying qualities.

The alcohol spray on the windshield that ordinarily would have prevented ice forming there and obstructing vision couldn't cope with the severe conditions.

Then the thermometer started falling. First to 20 degrees below, then to 30. It was so cold that the cabin windows were frozen solid on the inside and Rossi's windshield was a mass of whiteness an inch thick.

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TO top things off, the radio compass froze solid and the radio operator had to rely on the regular radio receiver to check the course. Since the radio loop wasn't enclosed in a housing, the operator had to keep cranking it to prevent it from freezing tight. If the operator had tried sending a signal in order to get a position check, the listening Japanese would have known the location of the ship and come roaring up to attack.

The easier way might have been to turn around and seek shelter some place back along the route. But then those badly-needed ingots wouldn't have gotten through on time.

Besides, Rossi remembered how important CNAC had been to the air forces operating in China from his AVG days, when CNAC transports flew supplies to AVG fields, moved equipment for them, evacuated soldiers and civilians, dropped food to starving troops in Burma.

This was his turn to fight, not at the controls of a pursuit ship but at the throttle of a lumbering transport.

Now things got a little better. The icing wasn't so bad and the sun came through the clouds, at first timidly, then more surely. Not that Rossi and the others aboard could see it. Frozen windows prevented that. But the greater brightness that came through the windows meant that outside the sun must be shining.

Still the numbing cold continued to bite through clothes and set teeth chattering. Somehow, Rossi had to see where he was flying. Towering mountains were somewhere ahead, he knew, rising a full 5000 feet above the highest limit to which he could push the transport.

By rubbing alcohol from the windshield

spray on his fingers, then rubbing the glass, Rossi finally could get a peek out the side window. What he saw wasn't reassuring. Jap patrols which had failed to spot him as yet were on the left, jagged peaks on the right.

Now it was possible to check position and to calculate speed. Carefully taking bearings on two pinnacles ahead, pilot and co-pilot discovered their ground speed was only 50 m.p.h. A headwind of 130 miles an hour had been hitting them on the nose all during that storm!

Only minutes now and they would be over the hump of the Himalayas and set to glide down to a landing. Then two things happened.

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FROM the radio operator came a hastily-scribbled note warning that three Jap patrols were reported headed their way. At the same moment the ship hit an air bump that broke the steel tie-down bands on the 110-pound ingots, tossing them against the cabin roof and tearing great holes in it. When the ingots hit the floor they punched long gashes in the wooden flooring and badly damaged some of the fuselage structure.

It took all of Rossi's skill as a pilot to wrestle the ship back to an even keel and lift her over the last hump of mountain.

At last it was possible to start the downward glide to a landing. Warm rain at 8000 feet washed the remainder of the ice from the wings.

As the ship rolled to a stop, passengers and crew punched away at the ice still sealing the cabin door and stepped from the zero temperature inside into burning sunshine at 135°!

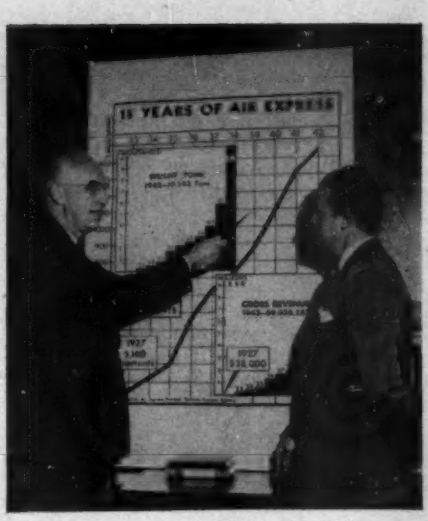
"But that's routine flying to CNAC pilots these days," Rossi later explained. "Gosh, there was once I wished I was a Flying Tiger again. That was when I sighted those Jap patrols on the horizon. If I hadn't been flying for a prosaic ol' airline maybe I could have hopped over and taken a crack at them!"

James M. Eaton, Vice-President, American Export Airlines, has as his guest Rear Admiral C. E. Rosendahl, commanding officer, U. S. Naval Air Station, Lakehurst, N. J., at American Export's official opening of their Overseas Base, La Guardia Field, New York.

Ban on Air Shipments To Venezuela Now Lifted

The temporary embargo on shipments to Venezuela which did not have the sanction of U. S. Government Air Transportation Priority or were not moving under U. S. Government Bills of Lading has been lifted, according to Pan American Airways, Inc.

All shipments to Venezuela not under Air Transportation Priority or U. S. Government Bills of Lading will continue to be accepted subject to delay in dispatch from the United States, also delay in transit when Government requirements for space in aircraft is such that shipments must be temporarily removed at Airports enroute to destination. No great delay in dispatch or in transit is anticipated at this time.



Pointing to a chart showing the great gains in air express, K. N. Merritt (left) of the Railway Express Agency forecasts a vast volume of air express between The Americas in the air world after the war. Air express handled some 87,420 international shipments during the first half of this year. Merritt is shown addressing John P. Lee, in charge of the press division of the Coordinator of Inter-American affairs.

Night Lighting Steps Up Latin American Services

Night lighting on two main aerial trunk lines uniting the Americas—the direct service from Brownsville, Texas, to Guatemala City, by way of Mexico City, and the Miami-Belem portion of the air route to Buenos Aires—both operated by Pan American World Airways, will shortly be put into operation.

Lighting of the Brownsville-Guatemala route will reduce from two days to one the time now required for air travel from Brownsville to Balboa.

Lighting of the Miami-Belem route will permit round-trip flights from Miami to San Juan, Puerto Rico, in one instead of the two days now required, and will reduce the elapsed time on the through-service from Miami to Buenos Aires by eliminating the need for the present over-night stopover at Port-of-Spain, Trinidad.

These improvements are the latest step in Pan American's long-range program for installation of night-lighting facilities on thousands of miles of main air lines in the Americas, permitting twenty-four-hour, continuous operation of schedules.

Air Express Looks Ahead after Marking Sixteenth Birthday

Air express is looking ahead to new fields after observing its sixteenth anniversary in September. (September 1st.) It was on September 1, 1927, that the first regularly scheduled air express service was started in the United States. In some twenty-six cities from coast to coast, airline and express officials witnessed the start of an air cargo service destined to grow from 17,000 shipments in 1928 to more than 1,405,000 shipments last year.

Many of the first mail and express ships were single-engined, open cockpit biplanes. Packages were stowed wherever there was room. Often the pilot sat on the cargo. Coast-to-coast shipments required thirty-six hours and sixteen re-fueling stops compared with present-day sixteen-hour, overnight transcontinental flights. Today's inter-city schedules are twice as fast as those of sixteen years ago, while rates are a third of what they were in 1927. A twenty-five-pound package from New York to the West Coast cost $65 in 1927; today the rate is $21. The most recent rate reductions, effective July 15, were indicative of how growing air express volume benefits the shipper.

According to the Railway Express Agency, which pioneered the development of air traffic as early as 1919, and which has handled cargo for the domestic airlines since 1927, the record volume of wartime traffic, combined with curtailed airline equipment, has created new problems. To insure rapid movement of war materials, a system of shipment priorities was instituted. To utilize cargo space most efficiently, the necessity for careful and compact packing had to be emphasized. And in order to expedite all types of air traffic, shippers were urged to dispatch shipments as soon as ready, instead of holding them for night schedules.

Indicative of the increasing volume of air express being handled this year are the nation-wide figures for April, which set new monthly highs. More than 2,558,000 pounds of express, much of it vital war material, was handled by the eighteen domestic airlines for an increase of 68 per cent over April, 1942. Gross revenue was up 55.8 per cent. Monthly gross revenue exceeded the million-dollar mark for the first time.

International air express, flown between the 350 United States and Canadian airport cities, and Central and South America, Mexico, Bermuda and Alaska, amounted to 87,420 shipments in the first six months of this year, or 5,852 shipments more than in the comparable 1942 period.

Vast Air Cargo Growth Lies Ahead for Canada

Coordinated Plane and Ground Carriers Seen for Post-War Development

By C. H. Dickens
Vice-President & General Manager, Canadian Pacific Air Lines, Ltd.

FOR more than 100 years the friendly neighbors of Canada and the United States have lived and worked together in harmony. This free interchange between the two countries has been a model of peaceful progress for the world. Perhaps the main instrument in making possible the most cordial relationships which have existed between our two nations has been transportation. Highways, railways, waterways and now airways between our two great nations have been key factors in cementing our economic and personal contacts.

It is doubtful if any two countries have had a greater interchange of all kinds of traffic than Canada and the United States, which is increasing almost daily as we pool our resources and facilities to defeat the common enemy. Tomorrow let us hope that the airplane will fulfill its greatest role in history in bringing together all peoples everywhere such as has been the case of transportation generally in your country and mine during the past century. The airplane has an increasingly great role ahead of it in Canada.

Perhaps a few figures to illustrate the volume of air business in Canada in 1942 will be helpful in showing the present and future of the country. All commercial lines flew 13,000,000 miles, carried 165,000 passengers, over 10,000,000 pounds of air cargo, and over 4,000,000 pounds of air mail. For a nation with one-tenth the population of the United States—although as large in area—these figures compare favorably with your own.

But only about one-third of our population is served directly by the air lines as they exist today. Another third of our population, which is centered in medium-sized cities and towns, can be readily reached by a coordinated system of feeder air-lines concentrating passengers, mail, and goods at key terminals on the major trunk routes and distributing this traffic from these points to the smaller centers.

The other third of our population is widely scattered on the farms of the prairies, the woods of the north, and at the various isolated outposts and trading stations.

Traffic from feeder lines will increase the traffic on trunk routes and so expanded main line services will be necessary. The feeder routes by their very nature, providing local services to many smaller communities, will use smaller planes, but more of them—and may finally employ more people and more equipment than the main lines.

All Mail by Air

The plan of carrying all first class mail by air when any saving of time is involved will mean expanded main line and feeder services, and I think we can look forward to expansion of this type of traffic. Mail has always used the fastest form of transport.

Our northern Canadian air routes can be expanded and developed further to reach great areas of territory favorable for minerals, water power, forest products, commercial fishing, furs, and last, but not least, tourist and holiday traffic to some of the most magnificent virgin country in the world.

Some studies are being made on air cargo as distinct from our present services. In the last pre-war year, 1939, Canadian

air carriers handled 19½ million pounds of cargo, whereas all United States lines totaled 9½ million pounds. Even with our favorable air cargo record we well realize that air freight is supplementary to surface transport for, last year, the Canadian railroads handled 150 million tons of freight while all air lines moved only slightly more than 5,000 tons.

The airplane in Canada has been used for very practical services where it possesses definite economic and operating advantages. It is essentially a vehicle of transport rather than a competitive means of luxurious travel service. It is a vital carrier to thousands of citizens engaged in developing minerals and natural resources.

I would like to dwell on what northern air transportation has done for Canada—of the radium mine 1,000 miles from the railhead, on the Arctic Circle; the oil wells just 100 miles south of the Circle; the mercury mines in Northern British Columbia; the tar sands containing unknown quantities of oil, and the many others which are producing vital supplies for our successful war effort, all of which are dependent to a large degree on air transportation. It is a colorful story in itself but must wait for some other occasion.

Lines to Remote Areas

It may be thought that I am overstressing the northern air services into hitherto remote areas, but I have seen what it has meant in the development of Canada and Alaska. Many possibilities for Canada's future air development lie in her northern areas where surface transport is difficult or does not exist. Already plans are being made to take an aerial inventory after the war of the nation's natural resources. Such a camera study will mean much in opening up new areas and providing positions for our returned airmen.

The network of northern air services that have been operating for fifteen years shows that in Canada, unlike most countries, air routes were started originally from railhead northward rather than paralleling the existing surface carriers. The northern services are complementary both to the main line air routes and to the two great east-west railway systems.

The value and importance of the northern services have been proved in this war. Today on Canadian Pacific's 12,000 miles of North-South routes over 90 per cent of the traffic is for the governments of Canada and the United States on their war projects. The Alaska highway; the Northwest joint defense air route; the oil wells; pipe line; and vital war minerals in the far north, have been achieved in the short space of two years because airplane service was available to get them started and keep them going.

Canada's air development internally must also be planned in conjunction with her international and inter-continental services. Canada must have more connecting services to the United States. At present there is only one Canadian company operating one route to a United States point, compared with eight United States companies operating ten routes to Canadian points, and four additional United States companies have applications now before CAB for extensions to and through Canada.

As the fourth largest trading nation in the world, Canada is tied closely to external trade and commerce for her very existence. The Canadian Pacific itself has long been the world's greatest travel system and we know from experience the vital

role which rail and ocean transport plays in the Canadian economy. In the air age ahead, Canadian airlines must likewise play their part in supplementing surface routes in providing essential air services around the globe. Our outlook should not be for just one route or one service, but for as many routes and services as may be required to meet and maintain Canada's position as a top-ranking world trading nation.

The record of peaceful relationships between Canada and the United States, and our history this past century, indicates it is of the greatest importance that our main line and feeder air routes be developed on a co-ordinated plan to ensure the maximum benefits for all.

A Summing Up

Summing up Canada's position and outlook:

We are an air-minded nation and have proved by our war services that we can take our place in the company of nations.

Our war effort is exemplified in our contribution in the air. Our Royal Canadian Air Force has now over 200,000 men and women in its ranks. Under the British Commonwealth Air Training Plan we have operated in Canada 154 training schools and, up to several months ago, had trained over 50,000 air crews. Average training miles flown daily approximate 2,000,000, an achievement of which we, as a "big" little nation, are very proud.

Aside from the war air training record, Canada also has won world renown for the pioneering by civilians of the original Atlantic ferry bomber service. The development of this ocean ferry shuttle service, now known as the R.A.F. Transport Command, was the forerunner of the many military ferry routes which now circle the globe.

Our internal air services will be developed rapidly when circumstances permit, particularly feeder lines and northern services to strengthen and expand the main lines. Externally, Canada must have air lines to service her international trade and commerce which is essential for our economic life.

Air transport must be recognized as a good thing for all peoples. It must be treated by all governments as transportation which can bring benefits and is essential to the future of all nations of the world—and not as a political bargaining weapon for the enjoyment or selfish exploitation of any single nation.

Any nation which endeavors to restrict

or suppress the logical expansion and development of air transportation, whether government or privately owned, will be relegated to an inferior position immediately and will be completely out of the picture in a few short years as the other nations expand and develop their air services under favorable conditions.

These are three very important facts which affect Canada's position: *first*, we are in a foremost position on northern hemispheric intercontinental air routes; *second*, our internal North-South air routes tap a territory far larger than the East-West settled areas in which 90 per cent of Canada's population is now concentrated offering unknown opportunities for future development, and *third*, the adoption of the airplane by the two great Canadian transportation systems places resources, experience, and financial stability behind any new air development.

Coordinated Services

The Canadian Pacific and Canadian National are now full fledged transportation systems in the true sense operating rail, water, road, and air vehicles.

With planned and coordinated development of feeder and mainline routes there will be no place on continental America which is more than an overnight trip to any other part of the continent, thus bringing the people of Canada and the United States even closer together, and further strengthening the bonds of peace.

With Canadian air services operating on the trade routes of the world, the Canadian people will be brought into closer contact with all other peoples to the mutual advantage of all.

The United States and Canada, as leaders of Democracy in the Western Hemisphere, should set an example of planned, coordinated peacetime air services which will ensure the use of the airplane to extend the principles of the Four Freedoms so clearly defined in the Atlantic Charter, and to which all of us subscribe.

The foregoing article represents excerpts from a recent speech by Mr. Dickens before the Mid-West Global Air Conference in Minneapolis, Minn.

CAB Announces Study Of Overseas Routes

The CAB is making an informal study of international air transport routes, and invited interested persons to submit suggestions with respect to the international routes which should be operated after the war. The Board issued the following statement:

"The Board currently is engaged in considering what international air transport routes appear likely to be especially important to the United States in the post-war period. This study is informal and will be used later as a basis for formal consideration of applications for certificates of public convenience and necessity involving international services. The study does not involve any consideration of the identity of the particular carrier or carriers by whom such services should be operated, but is directed solely to the question of the routes which would be desirable."

Air Transportation Equipment

Air Cargo Handling Equipment
Automatic Transportation Co., 101 West 87th St., Chicago, Ill.
R. J. Ederer, 540 Orleans St., Chicago, Ill.
Electrolift, Inc., 30 Church St., New York.
Evans Products Company, 15310 Fullerton Ave., Detroit, Mich.
A. B. Farquahar Co., 453 Duke St., York, Pa.
The Globe Company, 4000 Princeton Avenue, Chicago, Ill.
W. F. Hebard & Co., 2431 S. State St., Chicago 16, Ill.
The Heil Co., Milwaukee, Wis.
Lyon-Raymond Corp., Greene, N. Y.
Mechanical Handling Systems, 4680 Nancy Ave., Detroit, Mich.
Nutting Truck & Caster Co. 1163 Division St., Faribault, Minn.
Robbins & Myers, Inc., Hoist & Crane Division, Springfield, Ohio.
J. L. Stuart Mfg. Co., 31 Front St., San Francisco, Cal.
Jervis B. Webb Company, Detroit, Mich.
Whiting Corp., Harvey, Ill.

Cargo Hold-Down Straps
Leathercraft Furniture Mfg. Co., 3045 E. 11th St., Los Angeles, Cal.

Conveyors
Barber-Greene Co., Aurora, Ill.
Link-Belt Co., 307 North Michigan Ave., Chicago 1, Ill.

Lifts (Portable)
Federal Aircraft Works, 3456 Mississippi Drive, Minneapolis 12, Minn.

Loading Stands—Passenger

Mailroom Equipment
National Postal Meter Co., Inc., P. O. Box 372, Rochester 2, N. Y.

Platforms—Service
Security Fence Co., Somerville, Mass.

Platforms—Skid
Standard Pressed Steel Co., Jenkintown, Pa.

Scales
Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill.

Scales—Mail and Parcel
Toledo Scale Co., Telegraph Rd., Toledo.

Scales—Wheel Load
Lift-Truck Division, Waukesha, Wis.

Tractors and Trucks (Power)
Automatic Transportation Co., 101 W. 87th St., Chicago, Ill.
Baker Industrial Truck Div. (Baker-Raulang Co.), 2185 W. 25th St., Cleveland, Ohio.
Clark Tructractor Division of Clark Equipment Co., Battle Creek, Michigan.
Elwell-Parker Electric Co., 4170 St. Clair Ave., Cleveland, Ohio.
Mercury Manufacturing Co., 4104 So. Halstead St., Chicago, Ill.
Towmotor Co., 1226 E. 152nd St., Cleveland, Ohio.
Yale & Towne Mfg. Co. (Philadelphia Division), 4530 Tacony St., Philadelphia, Pa.

Trailers
American Bantam Car Co., Butler, Pa.
Butler Mfg. Co., 1233 Eastern Ave., Kansas City, Mo.
Clark Tructractor Division of Clark Equipment Co., Battle Creek, Mich.
C. H. & E. Manufacturing Co., 3849 N. Palmer St., Milwaukee, Wis.
Mercury Mfg. Co., 4104 So. Halstead St., Chicago, Ill.
Schweizer Aircraft Corp., Prescott Ave., Heights Station, Elmira, N. Y.
Trailer Co. of America, Cincinnati, Ohio.
Yale & Towne Mfg. Co., Chrysler Bldg., New York, N. Y.

Tractors—Crawler
Allis-Chalmers Mfg. Co., Milwaukee.
J. L. Case Co., 700 State St., Racine, Wis.
Caterpillar Tractor Co., Peoria, Ill.
Cleveland Tractor Co., 19300 Euclid Ave., Cleveland, Ohio.
Cunningham-Hall Aircraft Corp., 13 Canal St., Rochester, N. Y.
Deere & Co., Moline, Ill.
Four-Wheel Drive Co., Clintonville, Wis.
"H H" Manufacturers, 1140 Broadway. Long Beach, Calif.
International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

Trucks—Hand
Jarvis & Jarvis Inc., Palmer, Mass.
Karl Ort, W. Poplar St., York, Pa.

Trucks—Hand—Continued

Massey Harris Co., Racine, Wis.

Oliver Farm Equipment Co., 400 West Madison St., Chicago, Ill.

The Ready-Power Co., 3849 Grand River Ave., Detroit, Mich.

Standard Pressed Steel Co., Jenkintown, Pa.

Toro Manufacturing Corp., 3042 Snelling Ave., Minneapolis, Minn.

Trucks—Baggage

Aeronautical Trading Company, Floyd Bennett Airport, Brooklyn, New York.

Aircraft Accessories Corp., Kansas City 15, Kansas.

Automatic Transportation Co., 101 W. 87th St., Chicago, Ill.

Chas. W. Carll's Sons, Trenton, N. J.

Colson Corp., Elyria, Ohio.

Lewis-Shepard Sales Corp., Watertown, Mass.

New Sky Freight Loader Will Speed Air Cargo

To help solve the problem created by the fact that the door-sill-to-ground height of every type of plane is different, which has resulted in serious delays, inability to operate on schedule and even trip cancellations, the Heil Sky Freight Loader, first transport unit designed specifically for handling air freight, has been put into service to shorten loading and unloading time for air mail, express and freight.

The Heil Unit is loaded much the same as the standard stake or panel truck and then backed up to the cargo door. The body is hydraulically raised until the floor is at exactly the same height as the cargo door—the tailgate is lowered and cargo moved from truck to plane. Regardless of how high the door-sill may be from the ground, within the range of the unit, the body rises quickly and smoothly to exactly the same height. Using design features proved in other industries, The Heil Co. has produced a unit which will help solve many problems of the transportation of CARGO-BY-AIR.

Twin hydraulic cylinders, controlled either from the truck cab or from the body, boost the body straight up to a maximum height of 10 feet. In lowered position the body floor is 4½ feet high—just right for the lowest plane doors. Payload capacity of the unit is 8,000 lb. maximum—5,000 lb. normal and it's built to withstand a temperature range of from 50 degrees below zero to 160 degrees above.

Shown loading a plane at LaGuardia Field, New York, is the new Hi-Lift Sky Freight Loader built for the Army Air Forces by The Heil Co. of Milwaukee. The unit's twin hydraulic cylinders lift the body to the level of any plane door up to 10 feet from ground level. It will be available soon, says the maker, to commercial airlines, too.

TO Bernard L. Whelan, just named as general manager of Sikorsky Aircraft division of United Aircraft Corp. to succeed J. Reed Miller, who recently resigned as vice president and general manager. Sikorsky Aircraft built the first successful helicopter in this country and is now tooling up for quantity production.

Bernard L. Whelan

Whelan has been with United Aircraft for 15 years and is a veteran pilot, having learned to fly in 1913. He came to United Aircraft as a test pilot in 1928 and soon became manager of United Airport at East Hartford, now Rentschler Field. Later he was general manager of United Airport division of the corporation, until he went to Bridgeport as acting general manager of Sikorsky a few months ago.

TO Gordon S. Lundgren, appointed assistant to the advertising manager and in charge of production at American Airlines, Inc. Lundgren has been in advertising seven years. He is a member of the New England Aviation Cadet Committee, helping to procure aviation cadets for the First Service Command and the First Naval District.

Gordon S. Lundgren

TO Walter D. Peck, who has been transferred to the executive staff Panagra's South American Headquarters at Lima, Peru. Mr. Peck, who has been assistant to the vice president of the airline, particularly will devote himself to technical planning for the development of future operations.

Peck has been associated with the airlines business since he graduated from the University of Southern California in 1929. He collaborated with Major Melvin Hall on an article on "Wings for the Trojan Horse" which dealt with the Axis airline infiltration in South America.

TO C. Edward Leasure, upon his recent promotion as chief trial examiner of the new Office of Trial Examiners of the CAB. Leasure transferred from the Bureau of Air Mail of the Interstate Commerce Commission, where he served as an examiner to the Civil Aeronautics Authority upon its formation in 1938. In the following year he presided at many hearings and prepared many of the first formal proceeding reports for the new Authority. In 1939 he was appointed Chief of Formal Proceedings and presided over the American Export Air, Transatlantic Service hearing, one of the most important pre-war air carrier cases.

C. Edward Leasure

Following the reorganization of the authority he was promoted to chief of the Proceedings Division of the Civil Aeronautics Board, and in July of this year the board named him chief trial examiner.

The new Office of Trial Examiners will serve under direct jurisdiction of the board and will act as examiners in the hearing of all applications for new routes, foreign air carrier permits, mail rate cases, and all other aviation economic proceedings.

Widely known throughout the air transport industry, Ed Leasure has flown all over the United States in the conduct of his business. He has had twenty-one years of experience in public utility regulation and holds degrees in both civil engineering and law. He is known for his hospitality, his lovely wife, and his six children.

J. Prescott Blount *William T. Henry*

Two specialists have been added to the staff of United Air Lines' air cargo division to aid in dealing with heavy war-time cargoes. They are J. Prescott Blount, who formerly represented the Association of American Railroads in the west and central states, and William T. Henry, a statistician.

Mr. Blount, a one-time fruit grower in Louisiana, was secretary-treasurer of the Southern Box and Crate Manufacturers' Association from 1938 until he went with the railroad association in 1940. Mr. Henry, formerly associated with the Hinsdale public school systems, received an M.A. degree at Northwestern University last year.

TO John H. Bartol of American Airlines on his appointment to the position of Assistant to the New England Traffic Manager. Following his graduation from Harvard University, Bartol joined the company in 1936, when he was in the District Sales Office in New York. He worked in the Reservations Department for a time, and then became a New York Traffic Representative.

John H. Bartol

In September, 1940, Bartol was appointed Assistant to the Manager of Passenger Sales. On Jan. 1, 1942, he became Assistant to the General Traffic Manager, which position he held until his recent appointment in New England. Bartol assumed his new duties August 1st.

TO Thomas H. Corpe, actively associated with the automotive and aviation industries in an executive capacity for a number of years, on his appointment as vice president and general manager of the Jordanoff Aviation Corporation, New York City, according to announcement by Assen Jordanoff, president.

Thomas H. Corpe

Companies with which Corpe has previously been associated include Lockheed Aircraft Corporation, Burbank, Calif.; The Vega Airplane Company, a subsidiary of Lockheed, and General Motors Corporation. Before joining Jordanoff he was general sales manager of the Elastic Stop Nut Corporation of America.

In World War I Mr. Corpe earned recognition as a Flying Ace, serving with both the Canadian and the Royal Air Forces. He is a member of the Quiet Birdmen, the Wings Club and the Society of Automotive Engineers.

Mr. Corpe received his education at Oxford University, England, and at the University of Michigan, Ann Arbor.

TO F. W. Wildman of Memphis, Tenn., who has been named Assistant to Carleton Putnam, president of Chicago and Southern Air Lines. Mr. Wildman comes to Chicago and Southern from Dun and Bradstreet, Inc., where he was Manager of their Special Investigation and Analysis Division for the Memphis district. He was formerly Assistant to the Executive Vice President of the Treasury Department of the Hanover Bank and Trust Company of New York. Wildman is 33 years old. Born in Oklahoma City, Okla., he attended New York University and Columbia University. He is married and has two children.

TO Frank A. Rudolph for his appointment as eastern sales manager of Aircraft Accessories Corporation, Ohio, and Washington, D. C. offices. Aircraft Accessories has plants in Burbank, Calif.; Kansas City, Kans., and Slater, Mo., manufacturing aircraft equipment, radio apparatus for airplane and ground use and hydraulic equipment.

Congratulations from A. T.

TO Robert E. Johnson, director of advertising and publicity for United Air Lines, who has been given leave of absence by the company to accept a commission as lieutenant (j.g.) in the U. S. Naval Reserve. He has reported to Quonset Point, Rhode Island, for training as an aviation officer.

Robert E. Johnson

Lt. Johnson has been connected with commercial aviation since 1929 when he joined the publicity department of the Boeing Aircraft Company of Seattle, following his graduation from University of Washington. He became director of advertising and publicity for the Boeing Company and Pacific Northwest publicity director with United Air Lines in 1931. In 1932 he moved to Chicago as assistant advertising and publicity director for United Air Lines. He then became director of advertising and publicity in 1938.

Harold Crary, vice president in charge of traffic for United, will actively supervise the advertising and publicity activities of the company during Lt. Johnson's absence, it was announced.

TO Clarence Olson, who has been mail and express traffic manager for the New York district on his appointment as Central Regional mail andexpress traffic manager for Transcontinental & Western Air, Inc., with headquarters in Chicago. Mr. Olson has been mail and express traffic manager for the New York district. The appointment was announced by A. W. French, system mail and express manager, from Kansas City, Mo., main base of the airline.

Clarence Olson

TO Robert H. Herrnstein, named acting general traffic manager by Northeast Airlines Inc., succeeding Donald A. Duff, who served in that capacity for two years.

Herrnstein, graduate of Cincinnati College of Engineering and Finance, has been with Northeast since 1941, and is also assistant to the president. Before joining Northeast he was general traffic manager for Continental Airlines at Denver.

And to Warren H. Smith, formerly superintendent of stations, has been named assistant to Herrnstein.

And to Parker G. Milliken, under the same appointment, is now Superintendent of all Commercial and Atlantic Division stations of Northeast.

TO Russell J. Smith, of Los Angeles, former system reservations manager for Western Air Lines, who has been appointed superintendent of passenger service.

Smith joined Western Air in 1940 after a wide and varied career in aviation. In 1930 he enrolled as an air cadet at March Field and later continued to the Boeing School of Aeronautics to be graduated with a master mechanic's degree.

In 1931 he joined Century Air Lines, and the following year, a transcontinental airline which he continued to serve for eight years as assistant district superintendent of reservations service.

ON SECRET ROUTES—Flying cargo and passengers into China over hazardous military routes, Captain H. L. Woods (left), chief pilot, and Captain Sidney H. de Kantzow are two luminaries of the China National Aviation Corporation. Captain Woods has been under fire at least three times. Captain de Kantzow has been decorated by the Chinese Government.

Central Load Control Center Set Up by Chicago & Southern

The establishment of a traffic division to be known as the Central Traffic and Load Control Center has been announced by R. L. Heininger, General Traffic Manager of Chicago and Southern Air Lines. This department will be located in Memphis and has been created to control the utilization of payload on all flights in a manner which will produce the most revenue. By centralizing control of payload in one office under the direction of experienced personnel, passengers, mail and express can be handled more accurately.

The new department will be under the supervision of W. L. Scott, Superintendent of Reservations. G. W. Davidson has been named Chief Traffic Dispatcher of the new department. He was transferred from St. Louis to Memphis in January as Passenger Superintendent. He will be assisted by Joseph Doussard, transferred from St. Louis Operations to Memphis. Florence Paugh, former Reservations Manager at Memphis, has also been named Traffic Dispatcher in this newly created department.

Beech Aircraft Sets Production Record

During the first six months of 1943 the Beech Aircraft Corporation, Wichita, Kansas, exceeded the production for the entire year of 1942—and this great gain is attributed by president and board chairman, Walter H. Beech, to the excellent morale of the workers.

Under the Beech efficiency incentive plan, rewards go to all employees in proportion to the efficiency of the company's operation.

Production has been further enhanced by the awarding of thousands of dollars in prizes to employees offering suggestions for better and faster production methods. War bond and war stamp awards, made to members of groups having perfect attendance records, have reduced absenteeism to less than the normal peacetime rate. During one Spring month, Beechcraft had the lowest absenteeism of any aircraft manufacturers in United States. The cost of the awards under this program has averaged approximately 2¢ a day per employee.

AIR-PORTATION NEWS

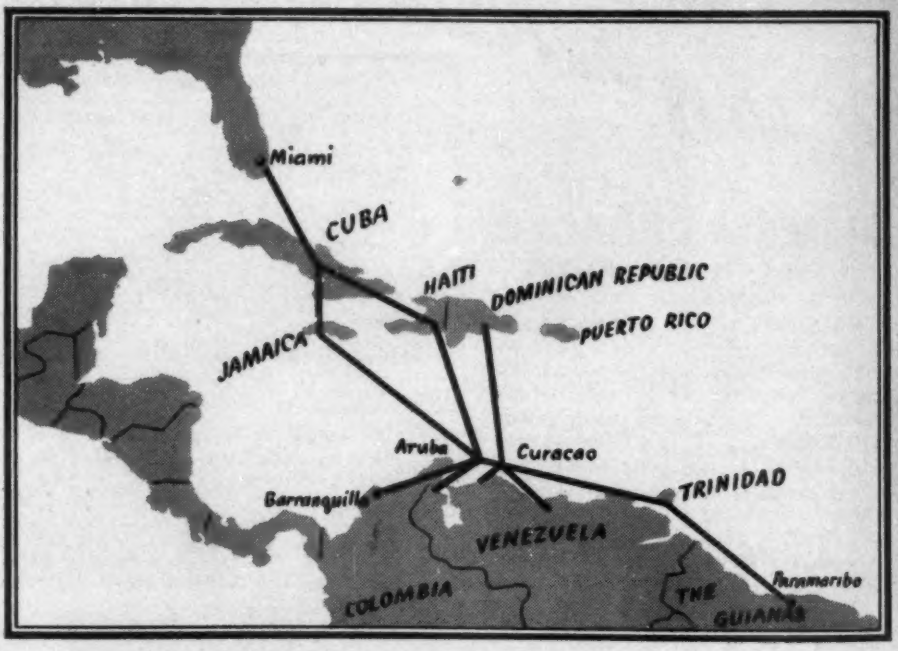
(TRADE MARK)

Royal Dutch Airlines Adds Another First to Its Records

Passengers and Freight Go from Miami to Curacao in Ten Hours

PASSENGERS, freight and daily newspapers now fly from Miami to Curacao, Netherlands West Indies, in less than ten hours over the new air route of the K.L.M. Royal Dutch Air Lines. They are enroute only nine hours and fifty minutes, to be exact, when they are set down at Curacao after completing the fourteen-hundred-mile journey from Miami. K.L.M.'s newly inaugurated semi-weekly passenger, air mail and freight service cuts transit time between the two points by a full day. Up to now, two full days have been necessary for the trip.

The permit for operating from the West Indies across the Caribbean into the United



END OF A HISTORY-MAKING FLIGHT—After the first transport of the K.L.M. Royal Dutch Airlines was set down at Miami's 36th Street Airport on completion of the line's first trip over the Miami Curacao route, newest airway connecting the Americas. Those in the picture are (left to right): S. Olivar of Air Express International, K.L.M. agents at Miami; M.E.A.L. De Jong, K.L.M. Vice President and Acting Director; T. M. van den Stempel, Netherlands Consul; Rear Admiral Meyer Ranneft; Wireless Operator Groeneveld; Second Pilot B. Langenberg; Captain Hakkenberg V. Gaasbeek; Arnold Bak, engineer; Lt. W. W. Gibbs, U. S. Navy, and Lt. Col. R. C. Hornsby, U. S. Army.

States was granted to K.L.M. on May 1, 1943, at the same time that permits were issued to four other airlines. By opening its service on Aug. 17, K.L.M. was the first to comply with the economic, technical and aeronautical regulations issued by the Civil Aeronautics Authority.

The Miami-Curacao service added another 1,400 miles to the air net of the K.L.M., which is now connecting the Netherlands West Indies (the Islands of Curacao, Aruba and Bonaire) with Surinam, Trinidad, Colombia, Venezuela, San Domingo, Haiti, Cuba and Jamaica. The company hopes that further connections to countries of Central and South America will be possible in the near future.

For the operation of the Curacao-Miami service, K.L.M. engaged a number of new pilots and more personnel is expected from Australia early this fall. American-built Lockheed planes fly the one-day, all-daylight trip, going alternately over two airways, one by way of Kingston, Jamaica, and the other by way of Port Au Prince, Haiti.

Few aviation enterprises anywhere in the world have had so rapid a growth as K.L.M.'s West Indies Section since it was started in 1935. In the past, each extension of its air lines has been the signal for colorful celebrations in the picturesque bit of Holland which is Curacao, with its brightly painted, seventeenth-century, gabled houses vieing in vividness with the deep blue of the tropical sky.

Passenger and freight reservations have kept the company's offices busy since plans for opening the new route were announced. All flights for September were booked solid. It is estimated the company's West Indies Section will carry 30,000 passengers and 700,000 pounds of freight during 1943, according to M. E. A. L. De Jong, of New York, acting director. Cargo to South America will include publications, movie films, medical supplies, vital machine tools and parts, and a great variety of other staple and perishable goods.

The press of Great Britain, while looking across the Atlantic at the efforts of United States firms to get into the air transportation business—firms whose present business is running railroads, buses, and steamship lines—has noticed the application of the Greyhound Bus Lines to start a system of helicopter transportation and has termed such a service "helicobus."

RE-ELECTED GENERAL AIRCRAFT HEADS — J. J. Maynard, Jr., (left), and Joseph T. Geuting, Jr., who continue to hold offices of president and vice president, respectively, of the General Aircraft Corporation of Astoria, L. I. The two officials are shown inspecting the exhibition "Skyways to Peace" at the Museum of Modern History.

Matson Wants to Run Air Service Over Its Ship Route to Hawaii

The Matson Navigation Company seeks permission from the Civil Aeronautics Board to operate four air transport services between the Pacific Coast and Hawaii over its steamship routes.

"The four routes on which we are desirous of establishing service," said William P. Roth, president of the Ocean Transportation Company, "and which will be inaugurated as early as is consistent with government policy, would connect Seattle and Honolulu, Portland and Honolulu, San Francisco and Honolulu, and Los Angeles and Honolulu."

Matson's application, it was emphasized, is a distinct departure from the question of ownership or operation of "air companies" by other modes of transportation. "We suggest no limitation," Roth said, "on the issuance of certificates to strictly air carriers or to other common carriers which the CAB might feel also to be in the public interest. We request only the right to continue serving the public and shippers with the best possible means through an integrated transport operation employing aircraft as a progressive development, just as in the past we moved from wood to steel and from sail to steam."

As a steamship company operating between the mainland and Hawaii, Matson receives no government aid or subsidy in any form. It does not ask for subsidy in operation of air transport equipment, and its application cites the overall economies and public convenience resulting from such a complete transportation system.

"Many foreign steamship companies, notably Cunard White Star, Bank, Peninsular and Oriental lines," said Roth, "have announced their intention of utilizing aircraft in international trade after the war in conjunction with their steamship services. Matson cannot lag behind. Our company has played a vital part in the development of trade from the Pacific Coast to Hawaii for more than 60 years. We feel that the future of our four principal cities on the West Coast, Seattle, Portland, San Francisco and Los Angeles, will demand this integrated sea and air service to Hawaii."

Ten Years of Flights In Sourdough Country Without an Accident

COMPLETING the first ten years of scheduled commercial flying in Alaska, during which 33,272,922 passenger miles were flown, the Alaska Division of Pan American World Airways, reports a perfect safety record.

Some of the most adverse flying conditions and unpredictable weather in the world confronted the Far North Clipper planes of Pan American carrying 36,839 passengers, 1,666,896 pounds of cargo and 3,209,282 pounds of mail safely since Sept. 20, 1933.

Pan American personnel has gained a wealth of information in the "icebox flying laboratory" nestling under the Arctic Circle which should prove of value in the post-war period of "short cut" transpolar flying.

It can be told now that a fleet of modern Lockheed Lodestar and Douglas DC-3 aircraft have been constantly at work carrying vital wartime cargoes to and across strategic Alaska on assignment to the armed forces, in addition to the continuing commercial operations.

The days when such pioneering pilots as Joe Crosson (now Alaska Division Manager), Al Monsen, S. E. Robbins, Joe Barrows, Matt Niemenen and others flew their wood-and-canvas monoplanes across glacial peaks and battled fierce Alaskan williwaws without benefit of radio, weather reports, or airway beacons have gone. Today, modern airports, radio and beacon guides dot the aerial trade trade routes of a territory at war.

Passenger miles flown in the first eight months of 1943 were well over 6,000 per cent greater than for the first eight months of 1933, while the number of passengers carried, cargo and mail loads were well over 1,000 per cent greater in 1943 than in 1933.

Merchandise for Bermuda's civilian needs is air-expressed by clipper ship regularly. Haberdashery, personal articles and clothing are transported from shipping centers by air express.

ALPS AIRPORTS

Airports in the Alps are being built even though warplanes bent on deadly bombing missions now roar overhead. Switzerland, in preparation for passengers and cargoes by air after the war, is at present planning numerous new airports, notably at Lausanne, Geneva and Berne. In other instances, Swiss authorities are thinking of leveling forests to build new landing fields for planes.

(TRADE MARK)

TWA Proposes to Put 95 More Cities On New Service Covering Some 4,500 Miles

AN application to bring trunk line coast-to-coast air service to ninety-five principal American cities has been filed by Transcontinental & Western Air, Inc., with the Civil Aeronautics Board. TWA's proposal to extend its facilities would place most towns of 5,000 or more population, along its route territory east of Kansas City, within twenty-five miles of an airline stop.

The airline seeks authority to link the ninety-five new cities with the twenty-eight cities it already serves by creating an orderly series of new routes which largely would parallel the TWA trunk line routes. By setting proper schedules, President Jack Frye of TWA said, all 123 cities could be woven into the company's transcontinental system. TWA's present route structure of 6,354 miles would be increased to approximately 10,994 miles. All new routes would be operated with multi-engine airliners.

The planning flight schedules, all communities would be provided with both through trunk line and local service. Trunk line schedules would be set up to provide direct service to TWA points throughout the country. Thus, a flight operating between New York and St. Louis might stop only at Scranton, Pittsburgh, Springfield, O., Indianapolis and Centralia, Ill. This flight would pass other intermediate towns, which would be served in turn by successive flights. High-speed, through transcontinental flights would be maintained with few stops, and their schedules would be integrated to pick up local traffic flowing into the main terminals. In effect, this type of scheduling is an enlargement of TWA's present system of operations in which certain flights are staggered to serve all smaller cities at various times of the day.

Certain schedules, according to Frye, would be operated to provide purely local service. Thus, a flight might operate between New York and Pittsburgh and stop at every point en route to take on and discharge local passengers, mail and express. These schedules would be integrated with through plane schedules for transferring passengers and cargo at major terminals.

Two Airlines of the South Apply For Far-Flung Extensions of Routes

TWO southern air transportation companies seek to extend their services throughout extensive portions of the South—Delta Air Lines filing application for authority to serve twenty-four new communities and Southeastern Air Express, Inc., filing application for authority to serve ninety-one new communities.

Delta Air Lines officials declared that new services were needed because of the industrial developments in the South. C. E. Woolman, vice president and general manager of Delta, said the Civil Aeronautics Board was being asked to award Delta one new route and seven major extensions to present routes. The new lines asked would touch fourteen States, eight of which are not presently served by the company.

Woolman said his company was "concentrating its system in the South, with emphasis on local service between Southern cities, but it is now considered desirable also to provide direct outlets from the South into key cities of the East, Middle West, and Florida.

The new applications would add about 3,500 miles to Delta's present system. The eight new States include Florida, North Carolina, Virginia, West Virginia, Maryland, Pennsylvania, New York, and Missouri.

Southeastern Air Express wants feeder-line routes totaling approximately 4,100 miles in

eight southern States. Southeastern Air Express, Inc., is a subsidiary company of Georgia Air Service, Inc., operators of Army Air Forces Flying Training Detachments at Bennettsville, S. C. and Jackson, Tenn.

Southeastern's application is called unique in that its parent company, Georgia Air Service, Inc., is believed to be the first Air Force Contract School operator to enter the feeder-line field.

The primary purpose of the proposed system is to supplement the existing trunk airlines and to make available to Southeastern cities now without airlines mail, passenger, and express connections with the trunk lines.

It is stated that more than five million people in the territory to be served will benefit by this mail, passenger, and cargo service. Twin-engine airplanes with cruising speeds of two hundred miles per hour have been proposed for use on the divisions where passenger traffic justifies, with single engine equipment on the mail and cargo runs.

Flights to Europe and Latin America Are Proposed by Braniff Airways

PASSENGERS of Braniff planes, if they are consistent air travelers, should be used to glimpses of the sinous and muddy Mississippi River gleaming beneath them as they fly north or south above the great Mississippi Valley. Now Braniff would have its passengers look out on the grey, cold Atlantic, the warm blue-and-green of the Caribbean, and the mud, jungle, mountain and plain of sections of South America.

As Braniff itself sums it up, nine capitals in Europe, eight in South America and twelve islands of the Caribbean will have direct air connections with central and southwest United States by Braniff Airways, Inc., if new routes are granted, adding 19,719 miles to its present domestic system of 3,119 miles.

Emphasizing the industrial growth of the South and the usual year-round excellence of flying conditions both in the United States and along the southern transatlantic route proposed, Braniff pointed out that the cities of Houston, Dallas and Fort Worth, Texas, Atlanta, Ga., and Charleston, S. C., will become international gateways under the Braniff application. Each of these communities is pictured by Braniff as a hub in an international air transport system in the central and southwest states and through connections maintained by Braniff Airways with other airlines operating throughout the nation.

Filing of the applications for service to Europe, South America and the Caribbean marks the first venture of Braniff Airways into the trans-oceanic air transportation field, and follows Braniff Airways' recently concluded financing program which resulted in the sale of 400,000 additional shares of stock, creating a total capital and surplus in excess of $7,000,000. The airline plans to use these funds for post-war expansion including the purchase of flying and ground equipment required for the proposed foreign operations. Meanwhile, Braniff Airways has invested $4,500,000 of its new capital in war bonds, distributing the purchases among the cities it presently serves from "the Great Lakes and the Rockies to the Gulf."

Service to Europe

Braniff's application for service to the capitals of Europe is called the first one filed with the Civil Aeronautics Board, which proposes to definitely originate trans-oceanic international flights at in-land points. The application is also unique in that it does not ask for the right to sell local tickets between Fort Worth-Dallas, Atlanta and Charleston.

Chosen because of the net work of domestic lines which feed into them from all directions. Fort Worth-Dallas will be the point of origin and termination of Braniff's European operation. Atlanta, Ga., similarly an airline hub in the southeast, was chosen as an additional gathering point while actual hops over the Atlantic will start at Charleston, South Carolina, which is connected by air with Washington, Philadelphia, and New York in the North and Miami and other Florida coastal points to the South. East of Charleston, the flight will first touch foreign soil at Hamilton, Bermuda, and will continue east to Fayal, Azores, Lisbon, Portugal, and to the junction point, Madrid, Spain. From Madrid, one leg will extend east to Barcelona, Marseille, Genoa, and ter minate at Rome. Another leg of the flight wil. continue north of Madrid to Paris, which is a second junction point from which planes will operate north to London and northeast to Berlin, Copenhagen, Oslo, and Stockholm. Involved in the proposed European route are 8,522 new route miles.

After recently adding Texas-Colorado service to its widely known "Great Lakes to the Gulf" air transport system, the line also has filed an application with the Civil Aeronautics Board for permission to extend its airline from Chicago to Detroit. The proposed extension would give the vast Detroit manufacturing area through-plane air transport service to the Southwest. Both express and local services are proposed in the Braniff application.

(TRADE MARK)

Million Dollar Structure Added To Pan American Port at Miami

A NEW $1,000,000 maintenance and office building at Pan American Field, Miami —the world's largest international air gateway and the terminal through which pass more than 100,000 international airline passengers yearly—has been put into use. Dedication ceremonies were attended by high-ranking military officers and by Juan T. Trippe, president of the Pan American World Airways System.

In an interview, on the day of the dedication, President Trippe declared "We are planning in terms of speed, larger loads and lower fares. We want the average American to think of a tour of Latin America as he now plans a 300-mile vacation trip.

"The coming era" will make the average American an international citizen. Schedules and tariffs for air travel will be such that everyone will want to visit Latin America, and will permit the average Latin American to visit us. We want them to come to this country to complete their education and get business training. The service will be for the average citizen, instead of for business leaders and tourists."

International air traffic through the Miami gateway, which is expected to increase 1,000 per cent within a short time after the return of peace, will mean," said Trippe, "greatly increased cooperation and understanding between communities and the public of the various countries."

Greatly increased international services in speeding passengers, cargo and mail vital to the country's war effort and the hemispheric defense effort have necessitated a major expansion of servicing and repair facilities of Pan American Airways in Miami.

The structure dedicated this month provides the 6,200 employes of the base with five acres of additional floor space and includes three four-story shop and office buildings divided by two hangars large enough to permit simultaneous servicing of twelve to eighteen planes. The building includes a modern medical center and a cafeteria in which 350 persons can be served simultaneously.

Oklahoma City Plans Big Terminal To Handle Both Air and Ground Traffic

A PROGRAM has been announced for a $25,000,000 mid-continent air freight and passenger terminal at Oklahoma City to provide coordinated post-war facilities for handling highway, rail and air traffic at the geographic center of America's intercontinental airways.

To be financed entirely by private and local funds, the plan calls for a terminal layout covering six square miles within nine miles of the city's business center, and a seaplane base on a 2,500-acre lake near by. Preliminaries have already been completed by The Austin Company, designers and builders of aircraft plants and airports here and abroad. The construction of two 11,000-foot runways, 500 feet wide, to serve glider tow-trains and planes carrying up to 400 passengers or 160,000 pounds of freight, are proposed. Four other runways for commerical planes, a civilian flying field, a helicopter base, a passenger terminal with a 100-room hotel, and hangars, will complete the aviation facilities.

Railroads and truck lines will enter the terminal on a level below the apron devoted to loading cargo planes, for direct transfer of mail and freight between land and airborne transports by gravity conveyors and elevators. Private motorists and motor buses, as well as interurban transit lines, will have direct access to the passenger terminal through traffic arteries paralleling the rail and track facilities.

"While others have been talking, Oklahoma City has been acting," Mayor R. E. Hefner of Oklahoma City said in announcing the program. "We have our terminal started. We already own more than half of the land and are in a position to acquire the balance. We have ample cash on hand to start and have reason to believe that the airlines and industry are wholeheartedly behind the program."

Governor Robert S. Kerr pointed to the development as an opportunity for Oklahoma to utilize its central location for the general advancement of post-war aviation.

"The establishment of these facilities midway between New York and Los Angeles on the direct fair-weather route will enable the big passenger and cargo planes now being developed to carry maximum payloads all the way in one-stop transcontinental service," Governor Kerr said.

Airline Bids for 5 Jersey Routes

Bowman R. Otto, president, Otto Aviation Corp., Newark, N. J., in the first application of its kind, asked the CAB for a license to carry passengers, mail and cargo over five separate routes within New Jersey, including Newark, Trenton, Camden, Atlantic City, Cape May, Phillipsburg and 18 other communities.

ALL FREIGHT AND A CONTINENT WIDE—Out of the darkness one night last August two flagships of American Airlines started across the continent on the first all-freight flights of an airline. One plane took off from New York, West bound, and one plane took off from Los Angeles, East bound. Watching the New York departure are (from left): W. C. Wilkerson, First Officer, American Airlines; E. C. Weber, Captain, American; J. Cauley, Traffic Department Railway Express Agency; M. D. Miller, Manager, Air Mail, Air Express and Freight, American; M. A. Pence, Air Mail Service, U. S. Post Office Department; W. H. Nichols, Assistant Superintendent Air Mail Service, U. S. Post Office Department; P. H. Cummings, Air Traffic Executive, Railway Express Agency; C. Oswald Ryan, Civil Aeronautics Board; C. A. Frey, Vice President, Traffic, Railway Express Agency; C. A. Rheinstrom, Vice President, Traffic, American Airlines.

Clinton M. Hester, of Des Moines, Iowa, first Administrator of the Civil Aeronautics Authority, has been named Washington Counsel for Chicago and Southern Air Lines. Mr. Hester has spent over twenty years in seven departments of the Federal Government, serving in departments ranging from the U. S. Shipping Board to the Treasury Department.

He made the historic junket on the first Boeing Clipper flight from San Francisco to Hongkong and was a passenger aboard the first flight from the West Coast to the South Seas (Canton Island), New Caledonia and New Zealand. He was also aboard the first ship carrying mail from the United States to Alaska and was a passenger on the initial flight over the northern air route from New York to Newfoundland and England.

Newspaper Is Printed For Airline Passengers

With editions which tie in closely with flight schedules, Northeast Airlines Inc., now has a unique publication affording up-to-the-minute news coverage for its passengers through the closest coordination of communication facilities. Editions are produced simultaneously at all the airline's commercial terminals through New England and Canada and, in addition, are relayed by plane to Northeast's stations in the Arctic and across the North Atlantic. The paper is called The Northeast Minute Man.

Replogle Presents New Air-Ways Globe

Today, with the "no trespassing" signs on boundaries and barriers being completely ignored by Aviation, Replogle Globes of Chicago has announced the Air-Ways Globe as a guide to the highways of the new air world.

Hundreds of thousands of air routes which tie together oceans, countries and continents are shown, and it is interesting to note the Great Circle air routes which go North over the top of the world. A handy Distance Finder is supplied to measure flying time and distance.

Unlike the usual, Replogle's new Air-Ways Globe sets free in its attractive cradle base, can be picked up, examined from all angles, and passed from hand to hand as easily as the latest V-Mail letter. Other interesting features are the horizon ring on the Replogle Air-Ways Globe which bears aviation information, and an explanatory booklet containing a cross-indexed air mileage chart.

Ferry Command Pilots Seek to Establish Overseas Air Service

A select group of Air Force Ferry Command Pilots seek to establish an international air transportation service. In an application filed with the SEC, the pilots disclosed that they were formed into a company headed by Captain Thomas G. Smith of Atlanta, Ga.

MARKING ANOTHER AIR-LINE MILESTONE — Crew members and officials of Trans-Canada Air Lines at the end of the flight marking the start of "main-line" service to Victoria, B. C. TCA now operates through service over a route of 3,911 miles from St. John's, N. F., to Victoria, called the longest air route on the North American continent. Shown are (from left): Gerard Dempsey, traffic representative, Victoria; First Officer Norman Ramsay, Stewardess Mina Wood, E. W. Stull, superintendent, western division; Captain Don Brady; W. J. Dalby, traffic manager; J. J. Robinson, city traffic manager, Vancouver; and Walter S. Thompson, public relations director.

AFTER INITIAL FLIGHT—Shown in the picture after Braniff Airways' first flight to Laredo, Texas, are (standing left to right): J. K. Berratta, San Antonio; Joe Frost, Sr., San Antonio; State Senator Jesse Martin, Fort Worth; William McKenna, executive assistant to the Mayor of Chicago; J. Woodall Rodgers, Mayor of Dallas; J. J. O'Donnell, president, Chicago Board of Education; A. C. Hodges, assistant sup't Air-mail Service, Fort Worth; R. L. Bobbitt, San Antonio; H. S. Foster, industrial mgr., Chamber of Commerce, Fort Worth; H. M. Van Auken, manager, San Antonio Chamber of Commerce; Jim Motheral, city engineer, Austin; Bill Steinhardt, airport director, San Antonio; Miss Bette Baker, Braniff hostess; H. L. Bridgeman, chairman, aviation committee Chamber of Commerce, San Antonio; Arthur Coleman, San Ontonio Express; Gus Mauermann, Mayor of San Antonio; T. E. Braniff, airline president; and Major B. F. McLain, president, Dallas Chamber of Commerce. Standing on the ramp are Congressman Eugene Worley, Shamrock, Texas; Frank G. Ragsdale, Editor, San Antonio Light; S. Jack Ingram, assistant to the president, Braniff Airways; N. A. Laurenzana, assistant chief pilot; R. V. Carleton, system chief pilot; and R. C. Shrader, vice president of Braniff Airways.

(TRADE MARK)

International Express and Mail Tables

Express rates quoted are from U. S. international airport of departure and are based on the latest prevailing tariffs. Shippers are warned, however, that they are subject to change.

Bro—Brownsville, Tex.
Bw—Boston, Mass.
Cg—Chicago
Cub—Cut Bank, Mont.
Eo—El Paso
Fv—Fort Worth
Gf—Grand Forks, N. D.
Lgs—Los Angeles
Mia—Miami
No—New Orleans
Nyk—New York
Sq—San Diego
Ste—Seattle

International Air Express is subject to two charges: one a charge per pound weight or measurements at carrier's option (200 cu. in. to the pound of weight), the other a charge per $100 of valuation. The two must be added on any shipment to determine the cost. Neither includes insurance, which may be purchased by the shipper from the carrier or otherwise.

Priorities: The air carriers warn all shippers that express traffic, both U. S. Government and commercial, is so heavy that no guarantee can be given that any shipment will depart on any particular plane unless it enjoys U. S. priority. Otherwise it will depart, in relation to other shipments, in the order received at the international airport used, subject to wartime limitations. Shippers should forward cargo to international airports as far in advance of desired departure as possible and should communicate **via Railway Express Agency, Inc.** with the international air carrier as to whether the shipment can be forwarded without priority, as shipments without priority for certain countries are, at present, under embargo. (On cargoes to be shipped via American Export Airlines, Inc., shippers should inquire at their office, Room 920, 25 Broadway, New York.)

International air carriers whose schedules and rates are included here are indicated by the letter following the symbol for the airport:

A—American Airlines.
C—Colonial Air Lines.
E—American Export Airlines.
EA—Express Aero Inter-Americano, S. A.
K—KLM-Royal Dutch Air Lines.
NE—Northeast Airlines.
NW—Northwest Airlines, Inc.
P—Pan American Airways System and affiliates.
T—Trans-Canada Air Lines.
U—United Air Lines.
W—Western Air Lines.

LATIN-AMERICA LINES

Destination	U. S. Gateway & Airline	RATES Per Lb.	RATES Per $100 Value	Depart	Mail per ½ Oz.
Antilla, Cuba	Mia P	.24	.25	Dly	.10
Antofagasta, Chile	Mia P	1.26	.50	M,W,Th,F, Sa	.40
"	No P	1.34	.50	Su,Tu,F	.40
"	Bro P	1.34	.50	Tu,W,Th,F, Su	.40
"	Lgs P	1.95	.50	M,Tu,W,Th, F,Sa	.40
Aracaju, Brazil	Mia P	1.26	.50	Su, W	.40
"	No P	1.71	.50	Su,Tu,F	.40
"	Bro P	1.71	.50	M,F	.40
"	Lgs P	2.28	.65	Su,Th	.40
Areia Branca, Brazil	Mia P	1.24	.50	Su	.40
"	No P	1.56	.50	Su	.40
"	Bro P	1.56	.50	F	.40
"	Lgs P	2.13	.50	Th	.40
Arequipa, Peru	Mia P	1.23	.50	Dly	.30
"	No P	1.26	.50	Su,Tu,F	.40
"	Bro P	1.26	.50	Dly	.30
"	Lgs P	1.93	.50	Dly	.30
Arica, Chile	Mia P	1.25	.50	M,W,Th,Sa	.40
"	No P	1.26	.50	Su,Tu,F	.40
"	Bro P	1.26	.50	Tu,W,Th,F, Su	.40
"	Lgs P	1.94	.50	M,Tu,W,Th, Sa	.40
Aruba, N. W. I.	— P	via M	arac	aibo, Ven.	...
"	Mia K	0.75	.45*	We,Sa	.25
Asuncion, Para	Mia P	1.73	.50	Su,F	.40
"	No P	1.86	.50	Tu,F	.40
"	Bro P	1.86	.50	W,F	.40
"	Lgs P	2.43	.65	Tu,Th	.40
Bahia, Brazil					
(See Sao Salvador)					
Balboa, Canal Zone	Mia P	.76	.40	Dly	.15
"	No P	.90	40	Su,Tu,F	.15
"	Bro P	.90	.40	Dly	.15
"	Lgs P	1.45	.50	Dly	15
Baracoa, Cuba	Mia P	.28	.25	Dly ex Sa	.10
Barcelona, Venezuela	Mia P	.85	.40	Dly	.25
"	No P	1.16	.50	Su,Tu,F	.25
"	Bro P	1.17	.50	Dly	.25
"	Lgs P	1.78	.50	Dly	.25
Barranquilla, Colombia	Mia K	0.98	.50*	Sa	.35
via Kingston	Mia P	.61	.40	Su,Tu,W,F	.35
via Balboa	Bro P	1.03	.40	Dly	.35
"	No P	1.50	.50	Dly	.35
"	Lgs P	1.03	.40	Tu,Th,Sa	.35
Bauru, Brazil	Mia P	1.58	.50	Su	.40
"	No P	1.71	.50	F	.40
"	Bro P	1.71	.50	F	.40
"	Lgs P	2.28	.65	Th	.40

Destination	U.S. Gateway & Airline	RATES Per Lb.	RATES Per $100 Value	Depart	Mail per ½ Oz.
Belem, Brazil (*See Para*)					
Bello-Horizonte, Brasil	Mia P	1.65	.50	Su,M,W,F	.40
"	No P	1.03	.40	Tu,Th,Sa	.35
"	Bro P	2.13	.50	M,W,F,Su	40
"	Lgs P	2.69	.65	Su,Tu,Th,F	.40
Bonaire, N. W. I.	— P	via M	arac	aibo, Ven.	
"	Mia K	0.79	.45*	We,Sa	.25
Buenos Aires, Argentina	Mia P	1.56	.50	Dly	40
"	No P	2.13	.50	Su,Tu,F	.40
"	Bro P	1.70	.50	Dly	.40
"	Lgs P	2.26	.65	Dly	.40
Cali, Col. via Balboa	Mia P	.89	.40	Dly	.35
"	No P	1.70	.50	Su,Tu,F	.40
"	Bro P	1.03	.40	Dly	35
"	Lgs P	1.59	.50	Dly	.35
Camaguey, Cuba	Mia P	.26	.25	Dly	.10
"	Mia K	0.23	.25*	We,Sa	.10
Camocim, Brasil	Mia P	1.22	.50		40
"	No P	1.50	.50		.40
"	Bro P	1.50	.50		.40
"	Lgs P	2.05	.50		.40
Campeche, Mexico	Mia P	.41	.25	Su,W,F	.10
"	No P	.41	.25	Su,Tu,F	.10
"	Bro P	.51	.40	Dly	.10
"	Lgs P	1.00	.40	Dly	.10
Campo Grande, Brasil	Mia P	1.48	.50	Su,F	40
"	No P	1.61	.50	Su,Tu	.40
"	Bro P	1.61	.50	W,F	.40
"	Lgs P	2.18	.50	Tu,Th	.40
Canavieiras, Brasil	Mia P	1.33	.50	Su,W	.40
"	No P	1.81	.50	Su,Tu,F	.40
"	Bro P	1.81	.50	M,F	.40
"	Lgs P	2.38	.65	Su,Th	.40
Caracas, Venezuela (*See La Guaira*)					
Caravellas, Brasil	Mia P	1.36	.50	Su,W	40
"	No P	1.85	.50	Su,F	.40
"	Bro P	1.85	.50	M,F	40
"	Lgs P	2.41	.65	Su,Th	40
Cayenne, Fr. Guiana	Mia P	1.02	.40	Dly	30
"	No P	1.26	.50	Su,Tu,F	.30
"	Bro P	1.26	.50	Th	30
"	Lgs P	1.91	.50	W	30
Cayo Mambi, Cuba	Mia P	.26	.25	Dly ex Sa	10
Chetumal, Mexico	Mia P	.55	.40	W,F	10
"	No P	.55	.40	Su,Tu	10
"	Bro P	.55	.40	Su,Th	10
"	Lgs P	1.04	.40	W,Sa	10
Chiclayo, Peru	Mia P	1.11	.50	Dly	30
"	No P	1.19	.50	Su,Tu,F	.30
"	Bro P	1.19	.50	Dly	30
"	Lgs P	1.81	.50	Dly	30
Cienfuegos, Cuba	Mia P	.28	.18	Su,Tu,F	10
C. del Carmen, Mexico	Mia P	.45	.25	Su,W,F	10
"	No P	.45	.25	Su,Tu,F	.10
"	Bro P	.47	.40	Dly	.10
"	Lgs P	.94	.40	Dly	.10
Ciudad Trujillo, D. R.	Mia P	.45	.25	Dly	.10
"	Mia K	1.11	.50*	Sa	.10
Cochabamba, Bolivia	Mia P	1.26	.50	W,Sa	.35
"	No P	1.35	.50	Tu,F	.35
"	Bro P	1.35	.50	Tu,F	.35
"	Lgs P	1.95	.50	M,Th	.35
Concepcion, Bolivia	Mia P	1.31	.50	Sa	.35
"	No P	1.45	.50	F	.35
"	Bro P	1.45	.50	F	.35
"	Lgs P	2.03	.50	Th	.35
Cordoba, Argentina	Mia P	1.49	.50	Dly	.40
"	No P	1.63	.50	Su,Tu,F	.40
"	Bro P	1.63	.50	Dly	.40
"	Lgs P	2.19	.50	Dly	.40
Coro, Venezuela	Mia P	.74	.40	Su,Tu	25
"	No P	1.11	.50	Su,Tu,F	.25
"	Bro P	1.11	.50	Dly	.25
"	Lgs P	1.69	.50	Dly	.25
Corumba, Brasil	Mia P	1.41	.50	Su,W,F,Sa	.40
"	No P	1.56	.50	Tu,F	.40
"	Bro P	1.56	.50	M,Th	.40
"	Lgs P	2.13	.50	S,W	.40
Cristobal, Canal Zone	Mia P	.76	.40	Dly	.15
"	No P	.92	.40	Su,Tu,F	.15
"	Bro P	.92	.40	Dly	.15
"	Lgs P	1.46	.50	Dly	.15

Destination	U.S. Gateway & Airline	RATES Per Lb.	RATES Per $100 Value	Depart	Mail per ½ Oz.
Cuenca, Ecuador	Mia P	1.06	.40	Su,W,F	.30
"	No P	1.15	.50	Tu,F	.30
"	Bro P	1.15	.50	Tu,Th,Sa	.30
"	Lgs P	1.76	.50	M,W,F	.30
Curacao, N. W. I.	— P	via M	arac	aibo, Ven.	
"	Mia K	0.75	.45*	We, Sa	.25
Curityba, Brazil	Mia P	1.60	.50	Su,W,F	40
"	No P	2.00	.50	Su,Tu,F	.40
"	Bro P	2.00	.50	M,W,F	.40
"	Lgs P	2.58	.65	Su,Tu,Th	40
David, Panama	Mia P	.82	.40	Dly	.15
"	No P	.85	.40	Su,Tu,F	.15
"	Bro P	.85	.40	Dly	.15
"	Lgs P	1.38	.50	Dly	.15
Esmeraldas, Ecuador	Mia P	.99	.40	Tu	30
"	No P	1.11	.50	Su	.30
"	Bro P	1.11	.50	M	.30
"	Lgs P	1.71	.50	Su	30
Florianopolis, Brasil	Mia P	1.63	.50	Su,M,F	.40
"	No P	2.11	.50	Tu,F	.40
"	Bro P	2.11	.50	W,F,Sa	.40
"	Lgs P	2.68	.65	Tu,Th,F	.40
Fort de France, Martinique	Mia P	.71	.40	Sa	.15
"	No P	1.00	.40	Su	.15
"	Bro P	1.16	.50	Su	.15
"	Lgs P	1.78	.50	Sa	.15
Fortaleza, Brasil (Ceara)	Mia P	1.23	.50	Su,M,Tu,W, Th,Sa	.40
"	No P	1.54	.50	Su,Tu,F	.40
"	Bro P	1.54	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs P	2.10	.50	M,W,Th,F, Sa	.40
Georgstown, British Guiana	Mia P	.90	.40	Dly	.30
"	No P	1.24	.50	Su,Tu,F	30
"	Bro P	1.24	.50	Dly	30
"	Lgs P	1.88	.50	Dly	.30
Guadalajara, Mexico	Bro P	.43	.25	Dly	10
"	Lgs P	.59	.40	Dly	.10
Guantanamo, Cuba	Mia P	.28	.25	Dly	10
Guatemala City, Gua.	Mia P	.74	.40	Dly	.12
"	No P	.53	.40	Su,Tu,F	12
"	Bro P	.53	40	Dly	.12
"	Lgs P	1.08	50	Dly	12
Guayaquil, Ecuador	Mia P	1.04	40	Dly	30
"	No P	1.15	.50	Su,Tu,F	.30
"	Bro P	1.15	.50	Dly	30
"	Lgs P	1.75	50	Dly	30
Havana, Cuba	Mia P	.20	18	Dly	10
"	MiaEA	.20	.18	Dly	.10
Hermosillo, Mexico	Bro P	.77	.40	Dly	10
"	Lgs P	.94	.25	Dly	10
Iguassu Falls, Brasil	Mia P	1.69	.50	Su,F	40
"	No P	1.91	.50	Tu,F	40
"	Bro P	1.91	.50	W,F	.40
"	Lgs P	2.48	.65	Tu,Th	.40
Ixtepec, Mexico	Mia P	.76	.40	Su,W,F	10
"	No P	.76	.40	Su,Tu,F	.10
"	Bro P	.41	.25	Su,M,Tu,W, Th,F	.10
"	Lgs P	.89	.40	Su,M,Tu,W, Th,Sa	.10
Joao Pessoa, Brasil (Cabedello)	Mia P	1.25	.50	W	.40
"	No P	1.64	.50	Su	.40
"	Bro P	1.64	50	M	.40
"	Lgs P	2.20	.50	Su	.40
Kingston, Jamaica	Mia P	.39	.25	Su,Tu,W,F	10
"	Mia K	0.34	.35*	We	.10
La Guaira, Venezuela	Mia P	.81	.40	M,W,F,Sa	.25
"	Mia K	0.75	.45*	We,Sa	.25
"	No P	1.15	.50	Su,Tu,F	.25
"	Bro P	1.15	.50	Dly	.25
"	Lgs P	1.75	.50	Dly	.25
La Paz, Bolivia	Mia P	1.25	.50	Su,Tu,W,Sa	.35
"	No P	1.30	.50	Su,Tu,F	.35
"	Bro P	1.30	.50	M,Tu,F,Sa	.35
"	Lgs P	1.95	.50	Su,M,Th,F	.35
Lima, Peru	Mia P	1.18	.50	Dly	30
"	No P	1.24	.50	Su,Tu,F	.30
"	Bro P	1.24	.50	Dly	.30
"	Lgs P	1.88	.50	Dly	30

Destination	U.S. Gateway & Airline	RATES		Depart	Mail per ½ Oz.
		Per Lb.	Per $100 Value		
Loja, Ecuador	Mia P	1.08	.50	Su,W,F	.30
"	No P	1.17	.50	Tu,F	.30
"	Bro P	1.17	.50	Tu,Th,Sa	.30
"	Lgs P	1.78	.50	M,W,F	.30
Maceio, Brasil	Mia P	1.26	.50	Su,M,Tu,W, Th,Sa	.40
"	No P	1.68	.50	Su,Tu,F	.40
"	Bro P	1.68	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs P	2.24	.50	M,W,Th,F, Sa	.40
Managua, Nicaragua	Mia P	.86	.40	Dly	.12
"	No P	.71	.40	Su,Tu,F	.12
"	Bro P	.71	.40	Dly	.12
"	Lgs P	1.22	.50	Dly	.12
Manaos, Brasil	Mia P	1.24	.50	Su,W	.40
"	No P	1.56	.50	Tu,F	.40
"	Bro P	1.56	.50	M,F	.40
"	Lgs P	2.13	.50	Su,Th	.40
Manta, Ecuador	Mia P	1.03	.40	Th,Sa	.30
"	No P	1.14	.50	Tu,F	.30
"	Bro P	1.14	.50	W,F	.30
"	Lgs P	1.74	.50	Tu,Th	.30
Manzanillo, Cuba	Mia P	.26	.25	Dly ex Su	.10
Maracaibo, Venezuela	Mia P	.69	.40	Su,Tu	.25
"	Mia K	0.87	.45*	We,Sa	.25
"	No P	1.08	.50	Su,Tu,F	.25
"	Bro P	1.08	.50	Dly	.25
"	Lgs P	1.66	.50	Dly	.25
Maturin, Venezuela	Mia P	.89	.40	Dly	.25
"	No P	1.19	.50	Su,Tu,F	.25
"	Bro P	1.19	.50	Dly	.25
"	Lgs P	1.80	.50	Dly	.25
Mazatlan, Mexico	Bro P	.57	.40	Dly	.10
"	Lgs P	.45	.25	Dly	.10
Medellin, Colombia (via Barranquila)	Mia P	1.06	.40	Su,Tu,W,F	.35
Medellin, Colombia (via Balboa)	Mia P	1.06	.40	Sa	.35
"	No P	1.10	.50	Tu,Th,Sa	.35
"	Bro P	1.10	.50	M,Th,F	.35
"	Lgs F	1.65	.50	Su,W,Th	.35
Mendoza, Argentina	Mia P	1.41	.50	M,W,Th,Sa	.40
"	No P	1.55	.50	Su,Tu,F	.40
"	Bro P	1.55	.50	Su,Tu,W,F	.40
"	Lgs P	2.11	.50	M,Tu,Th,Sa	.40
Merida, Mexico	Mia P	.37	.25	Su,W,F	.10
"	No P	.37	.25	Su,Tu,F	.10
"	Bro P	.55	.40	Dly	.10
"	Lgs P	1.04	.40	Dly	.10
Mexicali, Mexico	Lgs P	.20	.16	Dly	.10
Mexico City, Mexico	Mia P	.64	.40	Su,W,F	.10
"	No P	.64	.40	Su,Tu,F	.10
"	Bro P	.26	.25	Dly	.10
"	Lgs P	.69	.40	Dly	.10
"	Lgs A	.70	.35	Dly	.10
Mexico City, Mexico	Fv A	.42	.25	Dly	.10
"	Eo A	.42	.25	Dly	.10
"	Sq. A	.74	.35	Dly	.10
Minatitlan, Mexico	Mia P	.53	.40	Su,W,F	.10
"	No P	.53	.40	Su,Tu,F	.10
"	Bro P	.39	.25	Dly	.10
"	Lgs P	.86	.40	Dly	.10
Monterrey, Mexico	Fv A	.34	.25	Dly	.10
"	Eo A	.34	.25	Dly	.10
"	Lgs A	.62	.35	Dly	.10
"	Sq. A	.74	.35	Dly	.10
Montevideo, Uruguay‡	.....	...	...	.....	...
Nassau, Bahamas	Mia P	.20	.18	Dly ex Su,W	.10
Natal, Brasil	Mia P	1.25	.50	M,Tu,Th,Sa	.40
"	No P	1.61	.50	Su,Tu,F	.40
"	Bro P	1.61	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs P	2.18	.50	Su,M,W,Th, F,Sa	.40
Oaxaca, Mexico	Mia P	.73	.40	Su,W,F	.10
"	No P	.73	.40	Su,Tu	.10
"	Bro P	.35	.25	Su,Tu,Th	.10
"	Lgs P	.81	.40	Su,Tu,Th	.10
Oruro, Bolivia	Mia P	1.26	.50	Su,Tu,W,Sa	.35
"	No P	1.33	.50	Su,Tu,F	.35
"	Bro P	1.33	.50	M,Tu,F,Sa	.85
"	Lgs P	1.95	.50	Su,M,Th,F	.85
Panama City, Panama	(See Balboa, C. Z.)				
Para (Belem), Brasil	Mia P	1.13	.50	Dly	.40
"	No P	1.34	.50	Su,Tu,F	.40
"	Bro P	1.34	.50	Dly	.40
"	Lgs P	1.95	.50	Dly	.40
Paramaribo, Sur	Mia P	.97	.40	Dly	.30
"	Mia K	1.34	.60*	Sa	.30
"	No P	1.25	.50	Su,Tu,F	.30
"	Bro P	1.25	.50	Dly	.30
"	Lgs P	1.90	.50	Dly	.30
Parnahyba, Brasil	Mia P	1.21	.50	Su,W	.40
"	No P	1.48	.50	Su,F	.40
"	Bro P	1.48	.50	M,F	.40
"	Lgs P	2.04	.50	Su,Th	.40
Point a Pitre, Guadeloupe	Mia P	.66	.40	Sa	.15
"	No P	.98	.40	Su	.15
"	Bro P	1.14	.50	Su	.15
"	Lgs P	1.74	.50	Sa	.15
Port au Prince, Haiti	Mia P	.37	.25	Dly	.10
"	Mia K	0.39	.35*	Sa	.10
Port of Spain, Trinidad	Mia P	.79	.40	Dly	.15
"	Mia K	1.10	.55*	We,Sa	.15
"	No P	1.20	.50	Su,Tu,F	.15
"	Bro P	1.20	.50	Dly	.15
"	Lgs P	1.81	.50	Dly	.15
Porto Alegre, Brasil	Mia P	1.70	.50	Su,M,W,F	.40
"	No P	2.19	.50	Su,Tu,F	.40
"	Bro P	2.19	.50	M,W,F,Sa	.40
"	Lgs P	2.75	.65	Su,Tu,Th,F	.40
Puerto Suares, Bolivia	Mia P	1.41	.50	W,Sa	.35
"	No P	1.56	.50	Tu,F	.35
"	Bro P	1.56	.50	Tu,F	.35
"	Lgs P	2.13	.50	M,Th	.35
Preston, Cuba	Mia P	.24	.25	Dly ex Sa	.10
Quito, Ecuador	Mia P	.97	.40	Dly	.30
"	No P	1.09	.50	Su,Tu,F	.30
"	Bro P	1.09	.50	Dly	.30
"	Lgs P	1.68	.50	Dly	.30
Recife (Pernambuco), Brasil	Mia P	1.26	.50	Su,M,Tu,W, Th,Sa	.40
"	No P	1.65	.50	Su,Tu,F	.40
"	Bro P	1.65	.50	Su,M,Tu,W, Th,Sa	.40
"	Lgs P	2.21	.50	Su,M,Tu,W, Th,F,Sa	.40
Rio de Janeiro	Mia P	1.50	.50	Su,M,W,F	.40
"	No P	1.98	.50	Su,Tu,F	.40
"	Bro P	1.98	.50	M,W,F,Sa	.40
"	Lgs P	2.54	.65	Su,Tu,Th,F	.40
Robore, Bolivia	Mia P	1.38	.50	Sa	.35
"	No P	1.51	.50	F	.35
"	Bro P	1.51	.50	F	.35
"	Lgs P	2.06	.50	Th	.35
Salinas, Ecuador	Mia P	1.06	.40	Th,Sa	.30
"	No P	1.15	.50	Tu,F	.30
"	Bro P	1.15	.50	W,F	.30
"	Lgs P	1.75	.50	Tu,Th	.30
Salta, Argentina	Mia P	1.30	.50	Su,Tu,F	.40
"	No P	1.45	.50	Su,Tu,F	.40
"	Bro P	1.45	.50	M,Th,Sa	.40
"	Lgs P	2.03	.50	Su,W,F	.40
San Ignacio, Bolivia	Mia P	1.33	.50	Sa	.35
"	No P	1.48	.50	F	.35
"	Bro P	1.48	.50	F	.35
"	Lgs P	2.04	.50	Th	.35
San Jose, Bolivia	Mia P	1.35	.50	Sa	.35
"	No P	1.50	.50	F	.35
"	Bro P	1.50	.50	F	.35
"	Lgs P	2.08	.50	Th	.35
San Jose, Costa Rica	Mia P	.89	.40	Dly	.15
"	No P	.76	.40	Su,Tu,F	.15
"	Bro P	.76	.40	Dly	.15
"	Lgs P	1.31	.50	Dly	.15

* These rates are only due if consignments are shipped with declared value.

‡ Shipments for Montevideo must be assessed rates to Buenos Aires plus 58c per 2 lbs. or fraction thereof (min. 55c) for forwarding by other carrier to Montevideo, plus $1.10 per shipment transfer charge at Buenos Aires.

Destination	U. S. Gateway & Airline		RATES Per Lb.	RATES Per $100 Value	Depart	Mail per ½ Oz.
San Juan, Puerto Rico.	Mia	P	.53	.40	Dly	.10
San Salvador, El Salvador	Mia	P	.79	.40	Dly	.12
"	No	P	.61	.40	Su,Tu,F	.12
"	Bro	P	.61	.40	Dly	.12
"	Lgs	P	1.14	.50	Dly	.12
Santa Cruz, Bolivia	Mia	P	1.28	.50	W,Sa	.35
"	No	P	1.43	.50	Tu,F	.35
"	Bro	P	1.43	.50	Tu,F	.35
"	Lgs	P	1.99	.50	M,Th	.35
Santiago, Chile	Mia	P	1.38	.50	M,W,Th,Sa	.40
"	No	P	1.51	.50	Su,Tu,F	.40
"	Bro	P	1.51	.50	Su,Tu,W,F	.40
"	Lgs	P	2.08	.50	M,Tu,Th,Sa	.40
Santiago, Cuba	Mia	P	.26	.25	Dly	.10
Sao Luis, Brazil	Mia	P	1.19	.50	Su,M,Tu,W, Th,Sa	.40
"	No	P	1.43	.50	Su,Tu,F	.40
"	Bro	P	1.43	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs	P	1.99	.50	Su,M,W,Th, F,Sa	.40
Sao Paulo, Brazil	Mia	P	1.55	.50	Su,M,W,F	.40
"	No	P	2.04	.50	Su,Tu,F	.40
"	Bro	P	2.04	.50	M,W,F,Sa	.40
"	Lgs	P	2.60	.65	Su,Tu,Th,F	.40
Sao Salvador, Brazil (Bahia)	Mia	P	1.28	.50	Su,M,Tu,W, Th,Sa	.40
"	No	P	1.76	.50	Su,Tu,F	.40
"	Bro	P	1.76	.50	Su,M,Tu,Th, F,Sa	.40
"	Lgs	P	2.33	.65	Su,M,W,Th, F,Sa	.40
St. Johns, Antigua, British West Indies	Mia	P	.64	.40	Su,M,W,F,Sa	.15
"	No	P	.96	.40	Su,Tu,F	.15
"	Bro	P	1.13	.50	Su,M,W,F,Sa	.15
"	Lgs	P	1.73	.50	Su,Tu,Th,Sa	.15
St. Thomas, V. I.	Mia	P	.57	.40	Sa	.10
"	No	P	.90	.40	Su	.10
"	Bro	P	1.10	.50	Su	.10
"	Lgs	P	1.68	.50	Sa	.10
Talara, Peru	Mia	P	1.08	.50	Dly	.30
"	No	P	1.17	.50	Su,Tu,F	.30
"	Bro	P	1.17	.50	Dly	.30
"	Lgs	P	1.79	.50	Dly	.30
Tampico, Mexico	Bro	P	.20	.18	Dly	.10
"	Lgs	P	.81	.40	Dly	.10
Tapachula, Mexico	Mia	P	.74	.40	Su,W,F	.10
"	No	P	.74	.40	Su,Tu,F	.10
"	Bro	P	.53	.40	Dly	.10
"	Lgs	P	1.02	.40	Dly	.10
Tegucigalpa, Honduras	Mia	P	.82	.40	Dly	.12
"	No	P	.68	.40	Su,Tu,F	.12
"	Bro	P	.68	.40	Dly	.12
"	Lgs	P	1.18	.50	Dly	.12
Tres Lagoas, Brazil	Mia	P	1.53	.50	Su	.40
"	No	P	1.66	.50	F	.40
"	Bro	P	1.66	.50	F	.40
"	Lgs	P	2.23	.50	Th	.40
Tucuman, Argentina	Mia	P	1.34	.50	Su,Tu,F	.40
"	No	P	1.49	.50	Su,Tu,F	.40
"	Bro	P	1.49	.50	M,Th,Sa	.40
"	Lgs	P	2.05	.50	Su,W,F	.40
Turbo, Columbia (via Barranquilla)	Mia	P	1.06	.40	Su,Tu,W,F	.35
Turbo, Columbia (via Balboa, C. Z.)	Mia	P	1.06	.40	Sa	.35
"	No	P	1.10	.50	Tu,Th,Sa	.35
"	Bro	P	1.10	.50	M,Th,F	.35
"	Lgs	P	1.65	.50	Su,W,Th	.35
Tuxpan, Mexico	Bro	P	.20	.18	Dly	.10
"	Lgs	P	.83	.40	Dly	.10
Tuxtla,Gutierrez,Mexico	Mia	P	.81	.40	Su,W,F	.10
"	No	P	.81	.40	Su,Tu	.10
"	Bro	P	.45	.25	Su,Tu,Th	.10
"	Lgs	P	.93	.40	Su,Tu,Th	.10
Uyuni, Bolivia	Mia	P	1.26	.50	Su,Tu	.35
"	No	P	1.38	.50	Su,F	.35
"	Bro	P	1.38	.50	M,Sa	.35
"	Lgs	P	1.95	.50	Su,F	.35
Veracruz, Mexico	Mia	P	.57	.40	Su,W,F	.10
"	No	P	.57	.40	Su,Tu,F	.10
"	Bro	P	.33	.25	Dly	.10
"	Lgs	P	.79	.40	Dly	.10
Victoria, Brazil	Mia	P	1.41	.50	Su,W	.40
"	No	P	1.90	.50	Su,Tu,F	.40
"	Bro	P	1.90	.50	M,F	.40
"	Lgs	P	2.46	.65	Su,Th	.40
Villahermosa, Mexico	Mia	P	.49	.40	Su,W,F	.10
"	No	P	.49	.40	Su,Tu,F	.10
"	Bro	P	.43	.25	Dly	.10
"	Lgs	P	.90	.40	Dly	.10

ATLANTIC LINES

Botwood, Newfoundland	Nyk	P	.81	.40	Twice wk	.15
England via Foynes*	Nyk	E	(Rates	on	Application)	.30
" "	Nyk	P	(Rates	on	Application)	.30
Foynes, Eire via Botwood	Nyk	P	1.78	.50	Twice wk	.30
" " via Lisbon	Nyk	P	2.00	.50	Fortnightly	.30
" "	Nyk	E	1.78	.50	.....	.30
Hamilton, Bermuda	Nyk	F	.55	.25	Twice wk	.10
Horta, Azores	Nyk	P	1.70	.40	Weekly	.30
Lisbon, Portugal	Nyk	P	2.00	.50	Weekly	.30
Scotland via Foynes*	Nyk	E	(Rates	on	Application)	.30
" "	Nyk	P	(Rates	on	Application)	.30
Shediac, N. B.	Nyk	P	.51	.25	Twice wk	.06
Wales via Foynes*	Nyk	E	(Rates	on	Application)	.30
" "	Nyk	P	(Rates	on	Application)	.30

ALASKA LINES

Aniak, Alaska	Ste	P	1.08	.40	"	.08
Bethel, Alaska	Ste	P	1.11	.40	Schedules not published	.08
Burwash Landing "	Ste	P	.72	.40	"	.06
Fairbanks, "	Ste	P	.90	.40	"	.06
Flat, "	Ste	P	1.05	.40	"	.06
Galena, "	Ste	P	1.02	.40	"	.06
Juneau, "	Ste	P	.56	.25	Schedules not published	.06
Lake Minchumina "	Ste	P	.95	.40	"	.06
McGrath, "	Ste	P	1.00	.40	"	.06
Moses Point "	Ste	P	1.07	.40	"	.06
Nome, "	Ste	P	1.11	.40	"	.06
Tanacross "	Ste	P	.81	.40	"	.06
Tanana, "	Ste	P	.95	.40	"	.06
Whitehorse, Canada	Ste	P	.66	.40	"	.06

CANADIAN LINES

Calgary, Alb.	Nyk	T	1.02	†	Dly	.06
Edmonton, Alb.	Nyk	T	1.06	†	Dly	.06
Halifax, N. S.	Nyk	T	.31	†	Dly	.06
Lethbridge, Alb.	Nyk	T	.44	†	Dly	.06
" "	CubW		.04	†	Dly	.06
London, Ont.	Nyk	T	.22	†	Dly	.06
Montreal, Que.	Nyk	C	.12	†	Dly	.06
" "	Nyk	T	.12	†	Dly	.06
North Bay, Ont.	Nyk	T	.27	†	Dly	.06
Ottawa, Ont.	Nyk	T	.18	†	Dly	.06
Regina, Sask.	Nyk	T	.76	†	Dly	.06
St. John, N. B.	Nyk	T	.31	†	Dly	.06
St. Johns, N. F.	Nyk	T	.55	†	Dly	.06
Sydney, N. S.	Nyk	T	.35	†	Dly	.06
Toronto, Ont.	Nyk	A	.16	†	Dly	.06
"	Nyk	T	.16	†	Dly	.06
Vancouver, B. C.	Ste	U	.08	†	Dly	.06
"	Nyk	T	.56	†	Dly	.06
Windsor, Ont.	Nyk	A	.20	†	Dly	.06
"	Cg	A	.12	†	Dly	.06
"	Nyk	T	.20	†	Dly	.06
Winnipeg, Man.	GtNW		.04	†	Dly	.06
"	Nyk	T	.60	†	Dly	.06

* British Overseas Airways Corp. carries from Foynes, Ireland to destinations in England, Scotland, and Wales.

† Canadian air express is carried on the same basis as air express within the U. S.: $50 declared value free; excess charged at 10 cents per $100 or fraction thereof.

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